GeoDesign Inc

August 27, 2018

Oregon Department of Environmental Quality
Northwest Region
Environmental Partnerships
700 NE Multnomah Street, Suite 600
Portland, OR 97232

Attention: Tim Spencer

Request for Solid Waste Permit Exemption Determination
N Roshak Property
13794 and 13580 SW Roy Rogers Road
Tigard, Oregon
GeoDesign Project: Polygon-166-01

INTRODUCTION

GeoDesign, Inc. is pleased to present this request for an SWPE on behalf of Polygon Northwest Company (Polygon) for the proposed N Roshak Property located at 13794 and 13580 SW Roy Rogers Road in Tigard, Oregon (project site). Polygon is requesting permission from DEQ to reuse soil impacted with pesticides and/or naphthalene on site that will be generated during future earthwork activities without obtaining an SWLA permit. This letter is intended to provide the supplemental information required in the SWPE Application, including a description of the subsurface conditions, documentation that the waste is non-hazardous, and waste generation and disposal locations. The original signed application is presented in Attachment A.

The 38.52-acre project site is currently occupied by two rural residences, associated outbuildings, a large irrigation pond, a small pond, a creek, and agricultural land. The project site includes Tax Lots 3300 and 3301 of Washington County Tax Map 2S16. The structures will be demolished prior to redevelopment. The planned development includes construction of commercial, mixed-use (commercial/apartments), apartment, and residential structures and associated utilities and roadways. The planned development also includes the creation of parks and/or open spaces, including a public park and improved habitat for the ponds located in the northwest portion of the project site.

The project site is shown relative to surrounding physical features on Figure 1. The project site layout and surrounding properties are shown on Figure 2. The layout of the proposed

commercial/residential development is shown on the Area Site Plans, presented in Attachment B. Acronyms and abbreviations used herein are defined at the end of this document.

SUBSURFACE CONDITIONS

Based on geotechnical explorations performed by GeoDesign, subsurface conditions at the site generally consist of uncontrolled fill in the vicinity of the large pond (at depths up to 18 feet BGS). The uncontrolled fill predominantly consists of silt and clay. Native soil at the site generally consists of fine-grained alluvium overlying residual basalt. The fine-grained alluvium generally consists of low to medium plasticity clay and silt with varying amounts of sand. The consistency of the alluvium ranges from medium stiff to stiff and extends to depths between 7.0 and 20.5 feet BGS. The fine-grained alluvium is underlain by residual basalt, which is generally decomposed and transitions to weathered with depth. The residual basalt ranges from stiff to hard or dense to very dense. Although not encountered in our explorations, based on our experience in the vicinity, basalt cobbles and boulders are likely present within the residual basalt.

GROUNDWATER

Groundwater was encountered in three geotechnical explorations at the project site at depths between 4 and 17 feet BGS. The groundwater encountered in the exploration at a depth of 4 feet BGS was likely groundwater seepage from the large irrigation pond. Based on interviews, a review of well logs, and topographic maps for the area, the shallow groundwater encountered during the geotechnical investigation is likely perched. Regional groundwater is expected to be present at a depth of approximately 90 feet BGS. Shallow perched groundwater in the area is anticipated to flow to the northwest towards the unnamed tributary of the Tualatin River that flows to the southwest in the northwest portion of project site. The depth to groundwater may fluctuate in response to seasonal changes, changes in surface topography, and other factors not observed during our explorations.

NON-HAZARDOUS DETERMINATION

GeoDesign conducted a Phase I ESA and a limited surface soil and sediment evaluation of the project site in July 2018. The Phase I ESA indicated that the project site has historically been used for cropland, and the agricultural practice of crop production often includes the application of pesticides and/or herbicides. In addition, the following features of environmental concern were observed during the Phase I ESA site reconnaissance:

- A berm of undocumented fill was observed at the northwest boundary of the large irrigation pond in the central portion of the project site.
- Drums and containers of petroleum products along with surface soil staining were observed in a vehicle maintenance building.
- Three fueling ASTs were historically located west of the storage building.

Based on the historical agricultural use of the project site and features of environmental concern observed during the site reconnaissance, the limited surface soil and sediment evaluation included sampling and analysis of the following:

- All agricultural-use areas
- The undocumented fill berm
- A creek channel and small and large irrigation ponds
- The vehicle maintenance building
- The former AST area

A summary of the chemical analytical results, by area, is presented below. The locations of the above areas are shown on Figure 2. The soil and sediment sample analytical results are summarized in Tables 1 through 6.

AGRICULTURAL-USE AREAS

The agricultural-use area was divided into eight approximately equal composite sampling areas (COMP-2 through COMP-9). Soil samples were collected and composited from two depth zones (0 to 0.5 foot BGS and 1.0 foot to 1.5 feet BGS). Select composite soil samples were submitted for analysis of organochlorine pesticides and agricultural-use metals. Dieldrin, 4,4'-DDE, and/or 4,4'-DDT were detected in both depth zones in five of the eight composite sampling areas (COMP-4 and COMP-6 through COMP-9) at concentrations exceeding DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBCs for residential receptors and/or CFSLs. Dieldrin, 4,4'-DDE, and/or 4,4'-DDT were detected in only the 0 to 0.5 foot BGS zone in one of the composite sampling areas (COMP-3) at concentrations exceeding DEQ CFSLs. Composite sampling areas COMP-2 and COMP-5 appear to meet DEQ clean fill requirements, although a slight exceedance of 4,4'-DDT was detected in surface soil in composite sampling area COMP-5. The concentration of 4,4'-DDT detected in the surface soil in composite sampling area COMP-5 was 0.0221 mg/kg, compared to the DEQ CFSL of 0.021 mg/kg.

Based on the chemical analytical results from soil samples collected from agricultural-use areas at the project site, it is our professional opinion that:

- soil between 0 and 0.5 foot BGS generated from composite sampling areas COMP-2 and COMP-5 and soil between 1.0 foot and 1.5 feet BGS generated from composite sampling area COMP-3 does not present unacceptable risk to human health or the environment. Therefore, soil generated from these areas is not hazardous as defined by OAR Chapter 340, Division 101, and can be re-used without restriction on site as fill material, and
- provided that soil removed between 0 and 0.5 foot BGS from composite sampling area COMP-3 and soil removed between 0 and 1.5 feet BGS from composite sampling areas COMP-4 and COMP-6 through COMP-9 is interred in a disposal cell and covered with 3 feet of clean fill (thereby eliminating the soil ingestion, dermal contact, and inhalation exposure pathway), it will not present unacceptable risk to human health or the environment. Therefore, once interred, soil generated from these areas will not be hazardous as defined by OAR Chapter 340, Division 101.

Details pertaining to the disposal cells are discussed later in this document.

UNDOCUMENTED FILL BERM

Two composite soil samples were collected from the berm of undocumented fill and analyzed for petroleum hydrocarbons, PAHs, VOCs, and/or PCBs. Oil-range hydrocarbons were detected in one of the composite soil samples collected from the undocumented fill berm [COMP-12(0.0-2.5)] at a concentration of 89.4 mg/kg. Naphthalene was detected in both composite soil samples [COMP-11(0.0-3.0) and COMP-12(0.0-2.5)] at concentrations greater than the DEQ CFSL but less than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for residential receptors. 2-methylnaphthalene was detected in composite soil sample COMP-11(0.0-3.0) at a concentration less than the DEQ CFSL. Since the naphthalene concentrations in the undocumented fill exceed the DEQ CFSL, if transported off site for disposal, it would require disposal at a RCRA Subtitle D landfill such as Waste Management's Hillsboro facility. However, based on the chemical analytical data and provided the soil does not exhibit physical characteristics of petroleum hydrocarbon impacts during removal, such as odor or staining, it is our professional opinion that the soil does not and will not present unacceptable risk to human health or the environment. If re-used on site during redevelopment, the undocumented fill will be placed beneath buildings, roadways, or parking lots.

CREEK CHANNEL AND IRRIGATION POND SEDIMENT

Composite sediment samples (SEDCOMP-1 through SEDCOMP-7) were collected from the creek channel and the small and large irrigation ponds and analyzed for organochlorine pesticides and agricultural-use metals. Organochlorine pesticides were either not detected at concentrations greater than laboratory MRLs or were detected at concentrations less than applicable DEQ RBCs and/or CFSLs. Arsenic and lead were individually detected in sediment at one location at concentrations exceeding DEQ CFSLs. However, the average site-wide concentrations were less than the DEQ CFSL. Consequently, the sediment within the composite sediment sampling areas (SEDCOMP-1 through SEDCOMP-7) can be managed as clean fill.

VEHICLE MAINTENANCE BUILDING

One composite soil sample [COMP-1(0.0-0.5)] and four discrete soil samples [SS-1(0-0.5), SS-2(1.5-2), SS-3(0.5-1), and SS-4(0-0.5)] were collected from the vehicle maintenance building at the northwest portion of the project site and submitted for analysis of petroleum hydrocarbons, metals, PAHs, and/or PCBs. Analytical results indicated gasoline- and diesel-range hydrocarbons are present at concentration greater that the DEQ *Vapor Intrusion into Buildings* RBC for residential receptors and/or the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBCs for residential and construction worker receptors. Oil-range hydrocarbons were detected at concentrations ranging between 794 and 3,320 mg/kg. In addition, cadmium, naphthalene, and 1-methylnaphthalene were detected at concentrations greater than corresponding DEQ CFSLs. Based on the analytical results, the upper 1 foot of soil from the vehicle maintenance building, as well as any deeper soil exhibiting physical characteristics of petroleum hydrocarbon impacts during removal, such as odor or staining, does not meet DEQ's definition of clean fill and will be removed from the project site and disposed of at a RCRA Subtitle D landfill.

FORMER AST AREA

Three diesel ASTs (approximately 200- to 500-gallon capacity each) were historically located east of the well house on Tax Lot 3300 but were recently removed. Surface staining was not observed in the vicinity of the former AST locations. One composite soil sample [COMP-10(0-

0.5)] was collected from the former AST area and analyzed for petroleum hydrocarbons, metals, PAHs, and VOCs. Diesel-range hydrocarbons were detected in the composite soil sample at a concentration greater than the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for residential receptors. Oil-range hydrocarbons were detected at a concentration of 195 mg/kg. Cadmium, lead, and naphthalene were detected in the composite soil sample at concentrations greater than the DEQ CFSLs. Based on the analytical results, the upper 0.5 foot of soil from the former AST fueling area, as well as any deeper soil exhibiting physical characteristics of petroleum hydrocarbon impacts during removal, such as odor or staining, does not meet DEQ's definition of clean fill and will be removed from the project site and disposed of at a RCRA Subtitle D landfill.

WASTE GENERATION AND DISPOSAL

Project site redevelopment activities that will disturb soil and require either on- or off-site disposal include the following:

- Ground improvement
- Foundation construction
- Grading
- Installation of new utilities
- New landscaping

As described earlier, soil generated during redevelopment activities from the vehicle maintenance building and the former AST area do not meet DEQ's definition of clean fill and will be removed from the project site and disposed of at a RCRA Subtitle D landfill. Sediment generated during redevelopment activities from the creek channel and the small and large irrigation ponds meets DEQ's definition of clean fill and can be managed as clean fill. Soil generated during redevelopment activities from portions of the agricultural-use areas (specifically composite sampling areas COMP-2 and COMP-5) meet DEQ's definition of clean fill and can be managed as clean fill.

Soil generated during redevelopment activities from portions of agricultural-use areas COMP-3, COMP-4, and COMP-6 through COMP-9 and the undocumented fill berm will be managed as described below.

AGRICULTURAL-USE AREAS

Although the agricultural-related impacts at the project site are limited, it is both cost-prohibitive and unsustainable to export the volume of pesticide-impacted soil for disposal at a RCRA Subtitle D landfill such as Waste Management's Hillsboro facility. Therefore, Polygon identified an alternative to retain the soil on site in a manner that is protective of the future commercial and residential use of the property. Specifically, surface soil between 0 to 0.5 foot BGS removed from composite sampling area COMP-3 and surface and shallow subsurface soil between 0 and 1.5 feet BGS removed from composite sampling areas COMP-4 and COMP-6 through COMP-9 will be interred in two separate disposal cells located on the west half of the project site. One disposal cell (Cell A) will be located beneath the future commercial building and associated parking lot (near the west-central portion of the project site), and the other disposal cell (Cell B)

will be located beneath the parking lot at the southwest corner of the project site. The locations of disposal cells are shown on Drawing A presented in Attachment B. An estimated 30,585 cubic yards of soil will be excavated during construction of disposal Cell A, and an estimated 26,884 cubic yards of soil will be excavated during construction of disposal Cell B. The lateral extent and vertical profile of disposal Cell A are shown on Drawings B and C presented in Attachment B. The lateral extent and vertical profile of disposal Cell B are shown on Drawings D, E, and F presented in Attachment B. Soil generated during disposal Cell A construction will be re-used on site without restriction. Soil generated during construction of disposal Cell B from below 1.5 feet BGS will be re-used on site without restriction. A total of approximately 56,900 cubic yards of pesticide-impacted soil excavated during site preparation will be interred in the disposal cells. The disposal cells will be capped beneath a minimum of 3 feet of clean soil/fill.

Based on our preliminary calculations, the total volume of both disposal cells will accommodate the volume of pesticide-impacted soil requiring containment and capping. However, if the volume of soil generated from impacted portions of the agricultural-use areas exceeds the capacity of the disposal cells, we will contact DEQ to discuss additional disposal alternatives. Since pesticide concentrations in portions of the agricultural-use areas exceed the DEQ CFSLs and/or RBCs, if transported off site for disposal, the pesticide-impacted soil will require disposal at a RCRA Subtitle D landfill.

UNDOCUMENTED FILL BERM

The detected naphthalene and 2-methylnaphthalene concentrations in the undocumented fill berm do not pose a risk to future residential, urban residential, or occupational receptors. The approximate lateral extent and vertical profile of the undocumented fill berm is shown on Drawing G presented in Attachment B. The estimated volume of the undocumented fill berm is approximately 11,594 cubic yards. Provided the fill does not exhibit physical characteristics of petroleum hydrocarbon impacts during removal, such as odor or staining, the undocumented fill comprising the berm at the project site will be re-used on site during redevelopment and placed beneath buildings, roadways, or parking lots.

SUMMARY

- Soil generated from portions of the agricultural-use areas (COMP-2 and COMP-5) meets DEQ's definition of clean fill and can be managed on site without restriction.
- Soil generated from portions of the agricultural-use areas (COMP-3, COMP-4, and COMP-6 through COMP-9) will be interred in two on-site disposal cells. The disposal cells will be capped beneath a minimum of 3 feet of clean soil/fill. If the volume of soil generated from impacted portions of the agricultural-use areas exceeds the capacity of the disposal cells, DEQ will be contacted to discuss disposal alternatives.
- Soil generated from the undocumented fill berm does not pose unacceptable risk to future residential, urban residential, and occupational receptors and, provided the fill does not exhibit physical characteristics of petroleum hydrocarbon impacts during removal, will be re-used on site and placed beneath buildings, roadways, or parking lots.
- Sediment generated from the creek channel and the small and large irrigation ponds meets DEQ's definition of clean fill and can be managed as clean fill.

- The upper 1 foot of soil generated beneath the vehicle maintenance building (and any deeper soil exhibiting physical characteristics of petroleum hydrocarbon impacts during removal) will be disposed of at a RCRA Subtitle D landfill.
- The upper 0.5 foot of soil generated from beneath the former AST area (and any deeper soil exhibiting physical characteristics of petroleum hydrocarbon impacts during removal) will be disposed of at a RCRA Subtitle D landfill.

Please note that the processing fee of $500 is also enclosed. If you have questions regarding this request for an SWPE, please contact GeoDesign.

Sincerely,

GeoDesign, Inc.

Kyle R. Sattler, L.G. (Washington)
Senior Project Geologist

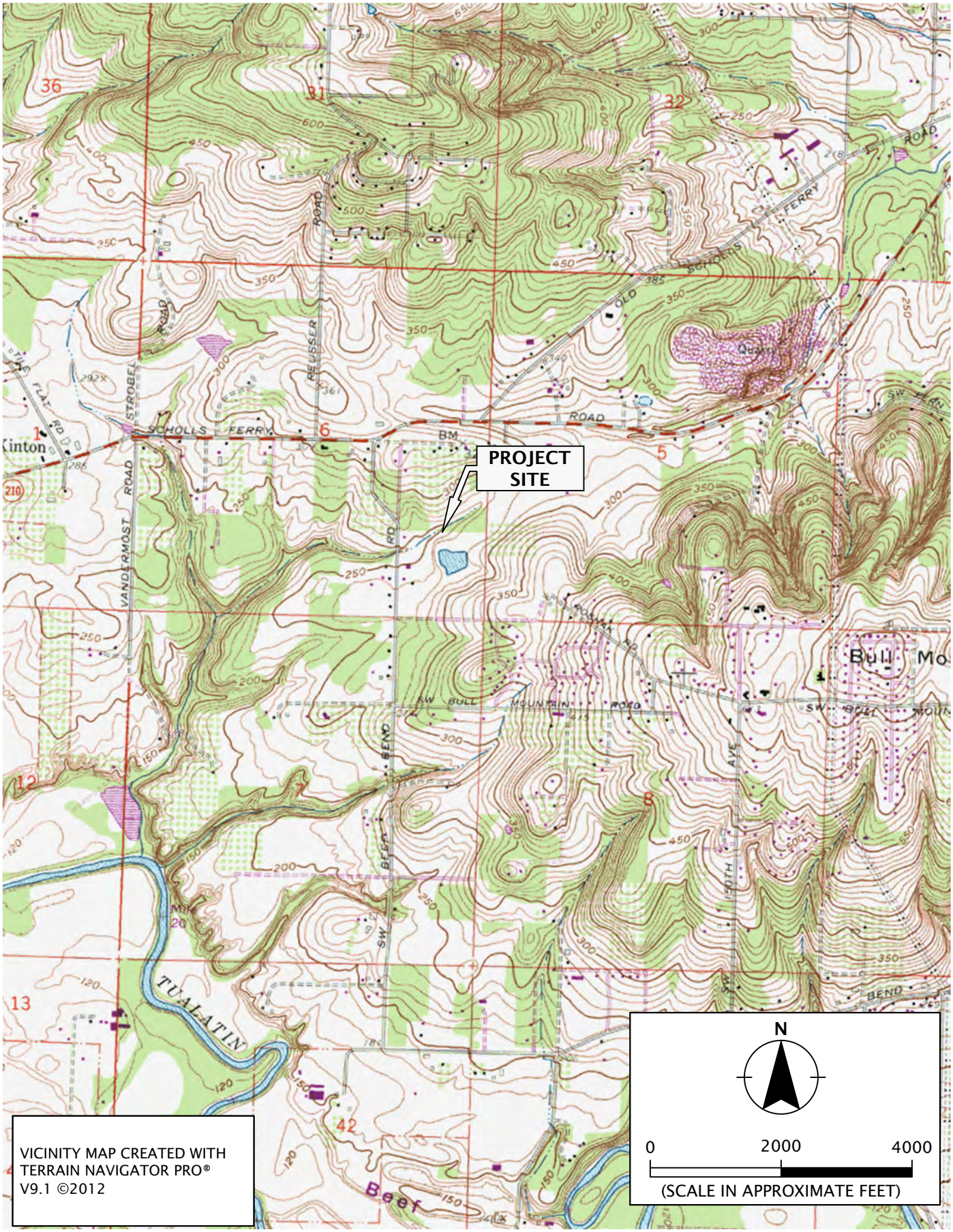
Jason O'Donnell, R.G.
Principal Geologist

Expires 06/01/2019

cc: Pam Verdadero, Polygon Northwest Company (via email only)
Kevin Dana, Oregon Department of Environmental Quality (via email only)

SRV:KRS:JSO:kt
Attachments
Two copies submitted
Document ID: Polygon-166-01-082718-envl-SWPE.docx

FIGURES



GeoDesign Inc 9450 SW Commerce Circle - Suite 300 Wilsonville OR 97070 503.968.8787 www.geodesigninc.com	POLYGON-166-01	**VICINITY MAP**	
	AUGUST 2018	N ROSHAK PROPERTY TIGARD, OR	**FIGURE 1**

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LEGEND:

- PROJECT SITE BOUNDARY
- POLE-MOUNTED TRANSFORMER
- WELL
- TAX LOT

N

0 200 400

(SCALE IN FEET)

SITE PLAN BASED ON AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH PRO®, JUNE 29, 2018

SITE PLAN

N ROSHAK PROPERTY
TIGARD, OR

FIGURE 2

POLYGON-166-01

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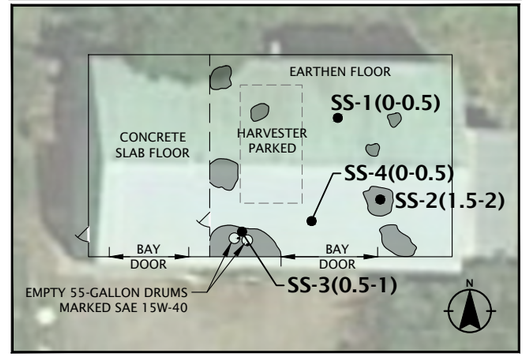
SITE PLAN BASED ON AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH PRO®, JUNE 29, 2018

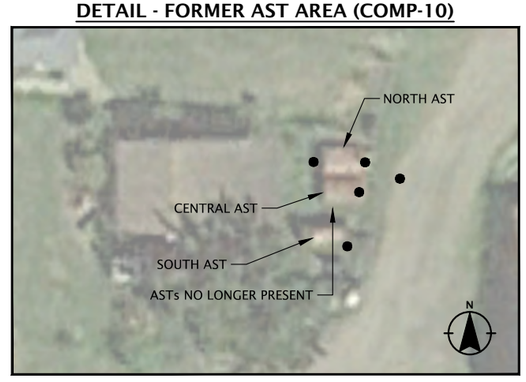
LEGEND:

- COMPOSITE SOIL SAMPLING AREA
- DISCRETE SOIL SAMPLE LOCATION
- COMPOSITE SEDIMENT SAMPLING AREA
- DISCRETE SEDIMENT SAMPLE LOCATION
- SURFACE STAINING (SEE DETAIL BELOW)

DETAIL - VEHICLE MAINTENANCE BUILDING (COMP-1)



DETAIL - FORMER AST AREA (COMP-10)



SITE PLAN - SAMPLING LOCATIONS

N ROSHAK PROPERTY
TIGARD, OR

FIGURE 3

POLYGON-166-01

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TABLES

TABLE 1
Summary of Soil and Sediment Sample Chemical Analytical Results [1]
Organochlorine Pesticides
N Roshak Property
13974 and 13580 SW Roy Rogers Road
Tigard, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	Organochlorine Pesticides by EPA Method 8081B (mg/kg)																					
		4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	alpha-HCH	alpha-Chlordane	beta-BHC	Chlordane	delta-BHC	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan Sulfate	Endrin	Endrin Aldehyde	Endrin Ketone	gamma-HCH	gamma-Chlordane	Heptachlor	Heptachlor Epoxide	Methoxychlor	Toxaphene
COMP-2(0.0-0.5)	06/11/18	<0.00207 U	<0.00207 U	<0.00207 U	<0.00207 U	<0.00207 U	<0.00207 U	<0.00207 U	<0.0621 U	<0.00207 U	<0.00207	<0.00207 U	<0.00207 U	<0.00207 U	<0.00207 U	<0.00207 U	<0.00207 U	<0.00207 U	<0.00207 U	<0.00207 U	<0.00207 U	<0.00621 U	<0.0621 U
COMP-3(0.0-0.5)	06/11/18	<0.00341 U	**0.0478**	**0.0168**	<0.00206 U	<0.00206 U	**0.0058**	<0.00206 U	<0.0619 U	<0.00330 U	**0.0231**	<0.00206 U	<0.00206 U	<0.00355 U	<0.00206 U	<0.00206 U	<0.00206 U	<0.00206 U	0.00248 U	<0.00206 U	<0.00206 U	<0.00619 U	<0.0619 U
COMP-3(1.0-1.5)	06/11/18	<0.00235 U	**0.00306**	<0.00235 U	<0.00235 U	<0.00235 U	<0.00235 U	<0.00235 U	<0.0706 U	<0.00235 U	<0.00235 U	<0.00235 U	<0.00235 U	<0.00235 U	<0.00235 U	<0.00235 U	<0.00235 U	<0.00235 U	<0.00235 U	<0.00235 U	<0.00235 U	<0.00706 U	<0.0706 U
COMP-4(0.0-0.5)	06/11/18	**0.00230**	**0.0495**	**0.0305**	<0.00205 U	<0.00205 U	<0.00205 U	<0.00205 U	<0.0614 U	<0.00205 U	**0.0149**	<0.00205 U	<0.00205 U	<0.00205 U	<0.00205 U	<0.00205 U	<0.00205 U	<0.00205 U	<0.00205 U	<0.00205 U	<0.00205 U	<0.00614 U	<0.0614 U
COMP-4(1.0-1.5)	06/11/18	<0.00222 U	**0.0385**	**0.00632**	<0.00211 U	<0.00211 U	**0.0120**	<0.00211 U	<0.0633 U	**0.0110**	**0.0149**	<0.00211 U	<0.00211 U	<0.00211 U	<0.00211 U	<0.00211 U	<0.00211 U	<0.00211 U	**0.00564**	<0.00211 U	<0.00211 U	<0.00633 U	<0.0633 U
COMP-5(0.0-0.5)	06/11/18	<0.00267 U	**0.0167**	**0.0221**	<0.00213 U	<0.00213 U	**0.00286**	<0.00213 U	<0.0640 U	<0.00480 U	**0.00462**	<0.00213 U	<0.00213 U	<0.00213 U	<0.00213 U	<0.00213 U	<0.00213 U	<0.00213 U	<0.00213 U	<0.00213 U	<0.00213 U	<0.00640 U	<0.0640 U
COMP-6(0.0-0.5)	06/11/18	**0.0114**	**0.272**	**0.239**	<0.00200 U	<0.00200 U	<0.00200 U	<0.00200 U	<0.0601 U	<0.00200 U	**0.0542**	<0.00200 U	<0.00200 U	<0.00261 U	<0.00200 U	<0.00200 U	<0.00200 U	<0.00200 U	<0.00200 U	<0.00200 U	<0.00200 U	<0.00601 U	<0.0601 U
COMP-6(1.0-1.5)	06/11/18	<0.00217 U	**0.0760**	**0.0550**	<0.00217 U	<0.00217 U	<0.00217 U	<0.00217 U	<0.0650 U	<0.00217 U	**0.0115**	<0.00217 U	<0.00217 U	<0.00217 U	<0.00217 U	<0.00217 U	<0.00217 U	<0.00217 U	<0.00217 U	<0.00217 U	<0.00217 U	<0.00650 U	<0.0650 U
COMP-7(0.0-0.5)	06/11/18	<0.0200 U	**0.319**	**0.556**	<0.00217 U	<0.00217 U	**0.0619**	<0.00217 U	**0.482**	<0.0283 U	**0.162**	<0.00217 U	<0.00238 U	<0.0165 U	<0.00585 U	<0.00238 U	<0.00552 U	<0.00217 U	**0.0387**	<0.00217 U	**0.00950**	<0.00650 U	<0.0650 U
COMP-7(1.0-1.5)	06/11/18	<0.00212 U	**0.0422**	**0.0474**	<0.00212 U	<0.00212 U	**0.00610**	**0.00528**	<0.0636 U	<0.00212 U	**0.0241**	<0.00212 U	<0.00212 U	<0.00212 U	<0.00212 U	<0.00212 U	<0.00212 U	<0.00212 U	**0.00328**	<0.00212 U	<0.00212 U	<0.00636 U	<0.0636 U
COMP-8(0.0-0.5)	06/11/18	<0.0193 U	**0.306**	**0.379**	<0.00224 U	<0.00224 U	**0.0408**	<0.00224 U	**0.320**	<0.00972 U	**0.0964**	<0.00224 U	<0.00224 U	<0.00917 U	<0.00358 U	<0.00224 U	<0.00492 U	<0.00224 U	**0.0220**	<0.00224 U	**0.00734**	<0.00671 U	<0.0671 U
COMP-8(1.0-1.5)	06/11/18	<0.00202 U	**0.0807**	**0.106**	<0.00202 U	<0.00202 U	**0.00745**	**0.00337**	<0.0606 U	**0.00337**	**0.0227**	<0.00202 U	<0.00202 U	<0.00202 U	<0.00202 U	<0.00202 U	<0.00202 U	<0.00202 U	**0.00409**	<0.00202 U	<0.00202 U	<0.00606 U	<0.0606 U
COMP-9(0.0-0.5)	06/11/18	<0.0123 U	**0.393**	**0.478**	<0.00207 U	<0.00207 U	**0.0402**	<0.00207 U	**0.358**	<0.0110 U	**0.104**	<0.00207 U	<0.00207 U	<0.00745 U	<0.00290 U	<0.00300 U	<0.00217 U	<0.00207 U	**0.0197**	<0.00207 U	**0.00826**	<0.00621 U	<0.0621 U
COMP-9(1.0-1.5)	06/11/18	<0.00198 U	**0.178**	**0.192**	<0.00198 U	<0.00198 U	**0.0172**	<0.00198 U	**0.137**	**0.00921**	**0.0377**	<0.00198 U	<0.00198 U	<0.00198 U	<0.00198 U	<0.00198 U	<0.00198 U	<0.00198 U	**0.00883**	<0.00198 U	**0.00325**	<0.00595 U	<0.0595 U
SEDCOMP-1(0.0-0.5)	06/08/18	<0.00336 U	<0.00336 U	<0.00336 U	<0.00336 U	<0.00336 U	<0.00336 U	<0.00336 U	<0.101 U	<0.00336 U	<0.00336 U	<0.00336 U	<0.00336 U	<0.00336 U	<0.00336 U	<0.00336 U	<0.00336 U	<0.00336 U	<0.00336 U	<0.00336 U	<0.00336 U	<0.0101 U	<0.101 U
SEDCOMP-2(0.0-0.5)	06/08/18	<0.00343 U	<0.00343 U	<0.00343 U	<0.00343 U	<0.00343 U	<0.00343 U	<0.00343 U	<0.103 U	<0.00343 U	<0.00343 U	<0.00343 U	<0.00343 U	<0.00343 U	<0.00343 U	<0.00343 U	<0.00343 U	<0.00343 U	<0.00343 U	<0.00343 U	<0.00343 U	<0.0103 U	<0.103 U
SEDCOMP-3(0.0-0.5)	06/08/18	<0.00382 U	**0.00533**	<0.00382 U	<0.00382 U	<0.00382 U	<0.00382 U	<0.00382 U	<0.114 U	<0.00382 U	<0.00382 U	<0.00382 U	<0.00382 U	<0.00382 U	<0.00382 U	<0.00382 U	<0.00382 U	<0.00382 U	<0.00382 U	<0.00382 U	<0.00382 U	<0.0114 U	<0.114 U
SEDCOMP-4(0.0-0.5)	06/08/18	<0.00244 U	**0.00320**	<0.00244 U	<0.00244 U	<0.00244 U	<0.00244 U	<0.00244 U	<0.0732 U	<0.00244 U	<0.00244 U	<0.00244 U	<0.00244 U	<0.00244 U	<0.00244 U	<0.00244 U	<0.00244 U	<0.00244 U	<0.00244 U	<0.00244 U	<0.00244 U	<0.00732 U	<0.0732 U
SEDCOMP-5(0.0-0.5)	06/08/18	<0.00330 U	<0.00330 U	<0.00330 U	<0.00330 U	<0.00330 U	<0.00330 U	<0.00330 U	<0.0990 U	<0.00330 U	<0.00330 U	<0.00330 U	<0.00330 U	<0.00330 U	<0.00330 U	<0.00330 U	<0.00330 U	<0.00330 U	<0.00330 U	<0.00330 U	<0.00330 U	<0.00990 U	<0.0990 U
SEDCOMP-6(0.0-0.5)	06/08/18	<0.00274 U	**0.0151**	<0.00274 U	<0.00274 U	<0.00274 U	<0.00274 U	<0.00274 U	<0.0823 U	<0.00274 U	**0.00280**	<0.00274 U	<0.00274 U	<0.00274 U	<0.00274 U	<0.00274 U	<0.00274 U	<0.00274 U	<0.00274 U	<0.00274 U	<0.00274 U	<0.00823 U	<0.0823 U
SEDCOMP-7(0.0-0.5)	06/08/18	<0.00311 U	**0.00359**	<0.00311 U	<0.00311 U	<0.00311 U	<0.00311 U	<0.00311 U	<0.0934 U	<0.00311 U	<0.00311 U	<0.00311 U	<0.00311 U	<0.00311 U	<0.00311 U	<0.00311 U	<0.00311 U	<0.00311 U	<0.00311 U	<0.00311 U	<0.00311 U	<0.00934 U	<0.0934 U
DEQ Generic RBCs[2]																							
Soil Ingestion, Dermal Contact, and Inhalation																							
Residential		2.7	1.8	1.9	0.031	0.086	NE	NE	1.7	NE	0.034	380	NE	19	NE	NE	0.49	NE	0.11	0.055	NE	0.49	
Construction Worker		94	66	66	1.1	3.0	NE	NE	62	NE	1.2	1,600	NE	80	NE	NE	17	NE	4.0	2.0	NE	17	
Excavation Worker		2,600	1,800	1,800	30	83	NE	NE	1,700	NE	33	45,000	NE	2,200	NE	NE	470	NE	110	56	NE	470	
Volatilization to Outdoor Air																							
Residential		NV	>Csat	NV	>Csat	NV	NE	NE	>Csat	NE	NV	>Max	NE	NV	NE	NE	NV	NE	18	28	NE	NV	
Vapor Intrusion into Buildings																							
Residential		NV	>Csat	NV	>Csat	NV	NE	NE	>Csat	NE	NV	>Max	NE	NV	NE	NE	NV	NE	18	28	NE	NV	
DEQ CFSLs[3]		0.021	0.021	0.021	0.011	0.07	NE	0.27	1.3	NE	0.0049	20	NE	0.04	NE	NE	0.38	NE	0.1	0.053	310	0.44	

Notes:
1. Chemical analyses performed by Apex Laboratories, LLC of Tigard, Oregon.
2. DEQ Generic RBCs dated May 2018
3. DEQ CFSLs dated July 23, 2014. Where applicable, CFSL is based on updated DEQ RBCs dated May 2018.
>Csat: This soil RBC exceeds the limit of three-phase equilibrium partitioning. Refer to Appendix D of DEQ's RBDM guidance document for the corresponding value of Csat. Soil concentrations in excess of Csat indicate that free product might be present.
>Max: The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg or 1,000,000 mg/L. Therefore, this substance is deemed not to pose risks in this scenario.
<MRL U: not detected at concentrations greater than the laboratory MRL (shown)
NV: chemical is considered non-volatile
Bolding indicates analyte detected at or above the laboratory MRL.
Gray shading indicates analyte detection at a concentration greater than DEQ RBCs and CFSLs.
Blue shading indicates analyte detection at a concentration greater than DEQ CFSLs.

TABLE 2
Summary of Surface Soil and Sediment Sample Chemical Analytical Results[1]
Total Metals
N Roshak Property
13974 and 13580 SW Roy Rogers Road
Tigard, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	Total Metals by EPA Method 6020 (ICPMS) (mg/kg)																
		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
SS-2(1.5-2)	06/08/18	--	3.21	128	--	<0.256	19.0	--	--	10.9	<0.102 U	--	--	<1.28 U	<0.256 U	--	--	--
SS-3(0.5-1)	06/08/18	--	<1.21 U	144	--	0.303	7.99	--	--	7.70	<0.0967 U	--	--	<1.21 U	<0.242 U	--	--	--
COMP-1(0.0-0.5)	06/08/18	--	1.20	149	--	0.706	4.10	--	--	7.58	<0.0921 U	--	--	<1.15 U	<0.230 U	--	--	--
COMP-2(0.0-0.5)	06/11/18	<1.22 U	5.08	172	0.725	0.416	21.6	19.1	15.9	14.6	<0.0972 U	<1.22 U	14.2	<1.22 U	0.568	<0.243 U	77.6	71.4
COMP-3(0.0-0.5)	06/11/18	<1.31 U	5.47	201	0.712	0.365	25.9	21.7	13.9	10.9	<0.104 U	<1.31 U	14.5	<1.31 U	<0.261 U	<0.261 U	79.7	70.4
COMP-4(0.0-0.5)	06/11/18	<1.24 U	5.17	191	0.638	0.370	17.6	19.9	22.7	16.5	<0.0993 U	<1.24 U	12.2	<1.24 U	<0.248 U	<0.248 U	78.9	76.2
COMP-5(0.0-0.5)	06/11/18	<1.27 U	3.21	151	0.549	0.507	18.0	11.3	19.3	14.4	<0.102 U	<1.27 U	10.3	<1.27 U	<0.254 U	<0.254 U	54.0	75.9
COMP-6(0.0-0.5)	06/11/18	<1.18 U	6.08	177	0.541	0.297	19.3	13.1	16.8	10.1	<0.0947 U	<1.18 U	14.3	<1.18 U	<0.237 U	<0.237 U	69.1	69.2
COMP-7(0.0-0.5)	06/11/18	<1.20 U	8.26	165	0.560	0.342	19.6	12.1	47.0	10.9	<0.0961 U	<1.20 U	13.4	<1.20 U	<0.240 U	<0.240 U	66.6	77.0
COMP-8(0.0-0.5)	06/11/18	<1.20 U	6.65	190	0.606	0.360	20.1	13.2	31.0	9.57	<0.0961 U	<1.20 U	14.7	<1.20 U	<0.240 U	<0.240 U	68.8	74.8
COMP-9(0.0-0.5)	06/11/18	<1.24 U	7.08	225	0.648	0.415	21.4	15.4	20.3	9.70	<0.0995 U	<1.24 U	16.0	<1.24 U	<0.249 U	<0.249 U	69.3	78.0
COMP-10(0.0-0.5)	06/11/18	--	3.25	174	--	2.92	17.7	--	--	63.9	0.107	--	--	<1.22 U	<0.243 U	--	--	--
COMP-11(0.0-3.0)	06/11/18	--	6.87	161	--	0.508	25.7	--	--	14.1	<0.0898 U	--	--	<1.12 U	<0.225 U	--	--	--
COMP-12(0.02.5)	06/11/18	--	4.48	135	--	0.439	18.2	--	--	14.7	<0.0923 U	--	--	<1.15 U	0.250 U	--	--	--
SEDCOMP-1(0.0-0.5)	06/08/18	<1.75 U	4.20	172	0.469	<0.350 U	18.4	10.9	10.9	7.42	<0.140 U	<1.75 U	11.5	<1.75 U	<0.350 U	<0.350	43.7	72.3
SEDCOMP-2(0.0-0.5)	06/08/18	<1.90 U	4.25	157	0.434	<0.380 U	18.3	14.5	15.7	9.11	<0.152 U	<1.90 U	12.3	<1.90 U	<0.380 U	<0.380 U	52.4	92.4
SEDCOMP-3(0.0-0.5)	06/08/18	<2.08 U	10.6	221	0.645	<0.416 U	25.8	27.8	23.4	11.8	<0.166 U	<2.08 U	16.3	<2.08 U	<0.416 U	<0.416 U	81.9	247
SEDCOMP-4(0.0-0.5)	06/08/18	<1.41 U	3.54	153	0.501	0.282	17.9	14.2	13.6	9.90	<0.113 U	<1.41 U	11.0	<1.41 U	<0.282 U	<0.282 U	60.6	46.3
SEDCOMP-5(0.0-0.5)	06/08/18	<1.87 U	<1.87 U	116	0.493	<0.375 U	9.78	12.3	10.4	45.1	<0.150 U	<1.87 U	5.91	<1.87 U	<0.375 U	<0.375 U	42.5	30.3
SEDCOMP-6(0.0-0.5)	06/08/18	<1.54 U	2.23	135	0.532	<0.307 U	16.7	8.09	12.3	7.96	<0.123 U	<1.54 U	7.52	<1.54 U	<0.307 U	<0.307 U	46.1	41.5
SEDCOMP-7(0.0-0.5)	06/08/18	<1.86 U	2.15	124	0.419	<0.373 U	19.3	9.39	11.4	19.0	<0.149 U	<1.86 U	8.24	<1.86 U	<0.373 U	<0.373 U	47.6	47.9
Average Concentration[2]		NC	***4.65***	NC	NC	***0.549***	NC	NC	***19.0***	***15.5***	NC	NC	NC	NC	NC	NC	NC	***78.0***
DEQ Generic RBCs[3]																		
Soil Ingestion, Dermal Contact, and Inhalation																		
Residential		NE	0.43[4]	15,000	160	78	120,000	NE	3,100	400	23	NE	1,500	NE	390	NE	NE	NE
Construction Worker		NE	15	69,000	700	350	530,000	NE	14,000	800	110	NE	7,000	NE	1,800	NE	NE	NE
Excavation Worker		NE	420	>Max	19,000	9,700	>Max	NE	390,000	800	2,900	NE	190,000	NE	49,000	NE	NE	NE
Volatization to Outdoor Air																		
Residential		NE	NV	NV	NV	NV	NV	NE	NV	NV	NV	NE	NV	NE	NV	NE	NE	NE
Vapor Intrusion into Buildings																		
Residential		NE	NV	NV	NV	NV	NV	NE	NV	NV	NV	NE	NV	NE	NV	NE	NE	NE
DEQ CFSLs[5]		0.56	8.8	790	21	0.63	76	43	34	28	0.23	2.1	47	0.71	4.2	5.2	180	180

TABLE 2
Summary of Surface Soil and Sediment Sample Chemical Analytical Results[1]
Total Metals
N Roshak Property
13974 and 13580 SW Roy Rogers Road
Tigard, Oregon

Notes:
1. Chemical analyses performed by Apex Laboratories, LLC of Tigard, Oregon.
2. Averaged values are calculated by averaging analyte concentrations and one-half the detection limits for non-detects.
3. DEQ Generic RBCs, dated November 1, 2015.
4. While the detected concentrations of arsenic are greater than this RBC, they are within the range of naturally occuring arsenic concentrations in Oregon soil.
5. DEQ CFSLs dated July 23, 2014. Where applicable, CFSL is based on updated DEQ RBCs dated May 2018.

>Max: The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg or 1,000,000 mg/L. Therefore, this substance is deemed not to pose risks in this scenario.
<MRL U: not detected at concentrations greater than the laboratory MRL (shown)
NV: chemical is considered non-volatile
Bolding indicates analyte detected at a concentration greater than the analytical laboratory MRL.
Blue shading indicates analyte detection at a concentration greater than DEQ CFSLs.
--: not analyzed

TABLE 3
Summary of Soil Sample Chemical Analytical Results[1]
Petroleum Hydrocarbons
N Roshak Property
13974 and 13580 SW Roy Rogers Road
Tigard, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	Gasoline-Range Hydrocarbons by Method NWTPH-Gx (mg/kg)	Diesel- and Oil-Range Hydrocarbons by Method NWTPH-Dx (mg/kg)	
			Diesel-Range	Oil-Range
SS-1(0-0.5)	06/08/18	<6.13 U	**1,390**	**794**
SS-2(1.5-2)	06/08/18	<6.42 U	**407**	<50.0 U
SS-3(0.5-1)	06/08/18	<6.49 U	**204**	**2,190**
SS-4(0-0.5)	06/08/18	<6.29 U	<25.0 U	**1,690**
COMP-1(0.0-0.5)	06/08/18	**166**	**5,510**	**3,320**
COMP-10(0.0-0.5)	06/12/18	<5.81 U	**1,290**	**195**
COMP-11(0.0-3.0)	06/12/18	<6.02 U	<25.0 U	<50.0 U
COMP-12(0.0-2.5)	06/12/18	<5.98 U	<25.0 U	**89.4**
DEQ Generic RBCs[2]				
Soil Ingestion, Dermal Contact, and Inhalation				
Residential		1,200	1,100	NE
Construction Worker		9,700	4,600	NE
Excavation Worker		>Max	>Max	NE
Volatilization to Outdoor Air				
Residential		5,900	>Max	NE
Vapor Intrusion into Buildings				
Residential		94	>Max	NE
DEQ CFSLs[3]		NE	NE	NE

Notes:

1. Chemical analyses performed by Apex Laboratories, LLC of Tigard, Oregon.
2. DEQ Generic RBCs dated May 2018
3. DEQ CFSLs dated July 23, 2014. Where applicable, CFSL is based on updated DEQ RBCs dated May 2018.

>Max: The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg or 1,000,000 mg/L. Therefore, this substance is deemed not to pose risks in this scenario.

<MRL U: not detected at concentrations greater than the laboratory MRL (shown)

Bolding indicates analyte detected at or above the laboratory MRL.

Gray shading indicates analyte detection at a concentration greater than DEQ RBCs.

TABLE 4
Summary of Soil Sample Chemical Analytical Results[1]
VOCs
N Roshak Property
13974 and 13580 SW Roy Rogers Road
Tigard, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	VOCs[2] by EPA Method 5035A/8260C (mg/kg)						
		n-Butylbenzene	**sec-Butylbenzene**	**Naphthalene**	**n-Propylbenzene**	**1,2,4-TMB**	**1,3,5-TMB**	**Total Xylenes**
SS-2(1.5-2)	06/08/18	<0.0642 U	<0.0642 U	<0.128 U	<0.0321 U	<0.0642 U	<0.0642 U	<0.0321 U
SS-3(0.5-1)	06/08/18	<0.0649 U	<0.0649 U	<0.130 U	<0.0324 U	<0.0649 U	<0.0649 U	<0.0324 U
COMP-1(0.0-0.5)	06/08/18	**0.301**	**0.189**	**1.01**	**0.0824**	**1.69**	**0.399**	**0.0627**
COMP-10(0.0-0.5)	06/12/18	<0.0581 U	<0.0581 U	<0.116 U	<0.0291 U	<0.0581 U	<0.0581 U	<0.872 U
COMP-11(0.0-3.0)	06/12/18	<0.0602 U	<0.0602 U	<0.120 U	<0.0301 U	<0.0602 U	<0.0602 U	<0.0903 U
COMP-12(0.02.5)	06/12/18	<0.0598 U	<0.0598 U	<0.120 U	<0.0299 U	<0.0598 U	<0.0598 U	<0.0897 U
DEQ Generic RBCs[3]								
Soil Ingestion, Dermal Contact, and Inhalation								
Residential		NE	NE	5.3	NE	430	430	1,400
Construction Worker		NE	NE	580	NE	2,900	2,900	20,000
Excavation Worker		NE	NE	16,000	NE	81,000	81,000	560,000
Volatilization to Outdoor Air								
Residential		NE	NE	6.4	NE	>Csat	>Csat	<Csat
Vapor Intrusion into Buildings								
Residential		NE	NE	6.4	NE	140	98	160
DEQ CFSLs[4]		NE	NE	0.087	NE	16	92	25

Notes:
1. Chemical analyses performed by Apex Laboratories, LLC of Tigard, Oregon.
2. Only VOCs detected during this investigation are listed. For a complete listing of VOCs, refer to the laboratory report in Appendix F.
3. DEQ Generic RBCs dated May 2018
4. DEQ CFSLs dated July 23, 2014. Where applicable, CFSL is based on updated DEQ RBCs dated May 2018.

>Csat: This soil RBC exceeds the limit of three-phase equilibrium partitioning. Refer to Appendix D of DEQ's RBDM guidance document for the corresponding value of Csat. Soil concentrations in excess of Csat indicate that free product might be present.
<MRL U: not detected at concentrations greater than the laboratory MRL (shown)
Bolding indicates analyte detected at or above the laboratory MRL.
Blue shading indicates analyte detection at a concentration greater than DEQ CFSLs.

TABLE 5
Summary of Soil Sample Chemical Analytical Results[1]
PAHs
N Roshak Property
13974 and 13580 SW Roy Rogers Road
Tigard, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	PAHs by EPA Method 8270D SIM (mg/kg)																	
		Acenapthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Phenanthrene	Pyrene
SS-2(1.5-2)	06/08/18	<0.0144 U	<0.0111 U	<0.0111 U	<0.0111 U	<0.0111 U	<0.0111 U	<0.0111 U	<0.0111 U	<0.0111 U	<0.0111 U	<0.0122 U	<0.0111 U	<0.0133 U	<0.0111 U	**0.119**	**0.175**	**0.0328**	**0.0527**	**0.0312**
SS-3(0.5-1)	06/08/18	<0.0106 U	<0.0106 U	<0.0106 U	<0.0106 U	<0.0106 U	<0.0106 U	<0.0106 U	<0.0106 U	<0.0116 U	<0.0106 U	<0.0106 U	<0.0106 U	<0.0106 U	<0.0106 U	<0.0106 U	<0.0106 U	<0.130 U	**0.0545**	**0.0827**
COMP-1(0.0-0.5)	06/08/18	<0.332 U	<0.125 U	<0.125 U	<0.0104 U	<0.0104 U	<0.0104 U	<0.0104 U	<0.0104 U	<0.0467 U	<0.0104 U	<0.291 U	0.0698 U	<0.312 U	<0.0104 U	**3.60**	**7.69**	**1.44**	**1.64**	**1.06**
COMP-10(0-0.5)	06/12/18	<0.0113 U	<0.0113 U	<0.0113 U	<0.0113 U	<0.0113 U	**0.0139**	<0.0113 U	**0.0279**	<0.0420 U	<0.0113 U	<0.0113 U	<0.0125 U	<0.0113 U	**0.0123**	**0.0136**	**0.0253**	**0.183**	**0.0326**	**0.125**
COMP-11(0-3)	06/12/18	<0.0107 U	<0.0107 U	<0.0107 U	<0.0107 U	<0.0107 U	<0.0107 U	<0.0107 U	<0.0107 U	<0.0107 U	<0.0107 U	<0.0107 U	<0.0107 U	<0.0107 U	<0.0107 U	<0.0107 U	**0.0157**	**0.205**	**0.0135**	<0.0107 U
COMP-12(0-2.5)	06/12/18	<0.0113 U	<0.0113 U	<0.0113 U	<0.0113 U	<0.0113 U	<0.0113 U	<0.0113 U	<0.0113 U	<0.0113 U	<0.0113 U	<0.0113 U	<0.0113 U	<0.0113 U	<0.0113 U	<0.0113 U	<0.0113 U	**0.211**	<0.0113 U	<0.0113 U
DEQ Generic RBCs[2]																				
Soil Ingestion, Dermal Contact, and Inhalation																				
Residential		4,700	NE	23,000	1.1	0.11	1.1	11	NE	110	0.11	NE	2,400	3,100	1.1	NE	NE	5.3	NE	1,800
Construction Worker		21,000	NE	110,000	170	17	170	1,700	NE	17,000	17	NE	10,000	14,000	170	NE	NE	580	NE	7,500
Excavation Worker		590,000	NE	>Max	4,800	490	4,900	49,000	NE	490,000	490	NE	280,000	390,000	4,900	NE	NE	16,000	NE	210,000
Volatilization to Outdoor Air																				
Residential		>Max	NE	>Max	>Csat	NV	NV	NV	NE	NV	NV	NE	NV	>Max	NV	NE	NE	6.4	NE	>Csat
Vapor Intrusion into Buildings																				
Residential		>Max	NE	>Max	>Csat	NV	NV	NV	NE	NV	NV	NE	NV	>Max	NV	NE	NE	6.4	NE	>Csat
DEQ CFSLs[3]		29	NE	29	1.1	0.11	1.1	11	NE	110	0.11	0.002	29	29	1.1	0.738	310	0.087	NE	1,700

Notes:
1. Chemical analyses performed by Apex Laboratories, LLC of Tigard, Oregon.
2. DEQ Generic RBCs dated May 2018
3. DEQ CFSLs dated July 23, 2014. Where applicable, CFSL is based on updated DEQ RBCs dated May 2018.
>Csat: This soil RBC exceeds the limit of three-phase equilibrium partitioning. Refer to Appendix D of DEQ's RBDM guidance document for the corresponding value of Csat. Soil concentrations in excess of Csat indicate that free product might be present.
>Max: The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg or 1,000,000 mg/L. Therefore, this substance is deemed not to pose risks in this scenario.
<MRL U: not detected at concentrations greater than the laboratory MRL (shown)
NV: chemical is considered non-volatile
Bolding indicates analyte detected at or above the laboratory MRL.
Blue shading indicates analyte detection at a concentration greater than DEQ CFSLs.

TABLE 6
Summary of Soil Sample Chemical Analytical Results [1]
PCBs
N Roshak Property
13974 and 13580 SW Roy Rogers Road
Tigard, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	PCBs by EPA Method 8082A (mg/kg)						
		Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260
SS-2(1.5-2)	06/08/18	<0.0106 U	<0.0106 U	<0.0106 U	<0.0106 U	<0.0106 U	<0.0106 U	<0.0106 U
SS-3(0.5-1)	06/08/18	<0.0109 U	<0.0109 U	<0.0109 U	<0.0109 U	<0.0109 U	<0.0218 U	<0.0109 U
COMP-1(0.0-0.5)	06/08/18	<0.0285 U	<0.00984 U	<0.0187 U	<0.0364 U	<0.0610 U	<0.112 U	<0.0669 U
COMP-10(0.0-0.5)	06/12/18	<0.0111 U	<0.0111 U	<0.0111 U	<0.0111 U	<0.0111 U	<0.126 U	**0.0718**
COMP-11(0.0-3.0)	06/12/18	<0.0105 U	<0.0105 U	<0.0105 U	<0.0105 U	<0.0105 U	<0.0105 U	<0.0105 U
COMP-12(0.02.5)	06/12/18	<0.0105 U	<0.0105 U	<0.0105 U	<0.0105 U	<0.0105 U	<0.0105 U	<0.0105 U
DEQ Generic RBCs [2]								
Soil Ingestion, Dermal Contact, and Inhalation								
Residential		0.23						
Construction Worker		8.4						
Excavation Worker		230						
Volatilization to Outdoor Air								
Residential		>Csat						
Vapor Intrusion into Buildings								
Residential		>Csat						
DEQ CFSLs [3]		0.2						

TABLE 6
Summary of Soil Sample Chemical Analytical Results [1]
PCBs
N Roshak Property
13974 and 13580 SW Roy Rogers Road
Tigard, Oregon

Notes:

1. Chemical analyses performed by Apex Laboratories, LLC of Tigard, Oregon.
2. DEQ Generic RBCs dated May 2018
3. DEQ CFSLs dated July 23, 2014. Where applicable, CFSL is based on updated DEQ RBCs dated May 2018.

>Csat: This soil RBC exceeds the limit of three-phase equilibrium partitioning. Refer to Appendix D of DEQ's RBDM guidance document for the corresponding value of Csat. Soil concentrations in excess of Csat indicate that free product might be present.

<MRL U: not detected at concentrations greater than the laboratory MRL (shown)

Bolding indicates analyte detected at or above the laboratory MRL.

ATTACHMENT A

Application for Solid Waste Permit Exemption Determination

Oregon Department of Environmental Quality

State of Oregon Department of Environmental Quality

DEQ BUSINESS OFFICE USE ONLY	
Date Rec'd:	
Amount Rec'd:	
Check No.:	
Deposit No.:	

Forward confirmation of fee payment to:
- Eastern Region: DEQ-The Dalles
- Northwestern Region: DEQ-NWR
- Western Region: DEQ-Eugene

Under OAR 340-93-080(2), DEQ may exempt from permit persons seeking to dispose of certain inorganic solid waste (e.g.: foundry sand, glass) in specified locations provided the applicant can demonstrate that the waste is substantially the same as "clean fill" exempted by OAR 340-93-050(3)(c). Each exemption is unique to the given waste and disposal location. A new exemption must be obtained any time the waste or the disposal location changes. A change in waste may be caused by a change in process, raw materials, waste management, etc. DEQ considers disposal without notification of a change in waste or disposal location to constitute the disposal of solid waste without a permit, a Class I violation.

THIS APPLICATION IS NOT COMPLETE UNLESS ALL ITEMS HAVE BEEN ADDRESSED.

A. REFERENCE INFORMATION *Attach additional sheets if needed. Please type or print clearly.*

1. APPLICANT INFORMATION

Name	Pam Verdadero
Company name	Polygon Northwest Company
Address	703 Broadway Street, Suite 510
City, State, Zip	Vancouver, WA 98660
Telephone	503-221-1920
Email	pam.verdadero@polygonhomes.com

2. DISPOSAL SITE ROPERTY OWNER INFORMATION

Name	Polygon Northwest Company
Mailing address	703 Broadway Street, Suite 510
City, State, Zip	Vancouver, WA 98660
Telephone or email	503-221-1920

3. DISPOSAL SITE INFORMATION

Street address	Formerly 13794 and 13580 SW Roy Rogers Road
City, State, Zip	Sherwood, Oregon, 97140
County	Washington
Latitude and longitude	45.421030, -122.850000
Tax lot number(s)	Tax Lots 3300 and 3301 of Washington County Tax Map 2S16
Mailing address	
City, State, Zip	

B. SIGNATURE: I hereby certify by my signature below that the information contained in this application and the documents I have attached, are true and correct to the best of my knowledge and belief.

Signature: Pamela Verdadero	Date: 8/24/18
Print name: Pamela Verdadero	Title: Dir Land Acquisition

Note: The application must be signed by the applicant or by a duly authorized agent, employee, officer, or representative of the applicant. When another person signs on behalf of the applicant, his/her title or relationship to the applicant should be shown. In all cases, the person signing the form should be authorized to do so by the applicant. An application submitted for a corporation must be signed by (or the signatory must be authorized by)

a principal executive officer of at least the level of vice president; or for a partnership or sole proprietorship, by a general partner or the proprietor, respectively. In the case of a municipal, state, federal, or other public facility, the application shall be signed by either a principal operating officer or ranking elected official.

C. ATTACH TO THIS PERMIT EXEMPTION APPLICATION

To complete your exemption application attach the following if required for your application: (Note: If you have questions regarding requirements, please check with the regional permit coordinator).

☐ 1. A STATEMENT OF APPROVAL from the property owner or person with long-term control of the property, if other than applicant.

☑ 2. A DISPOSAL LOCATION MAP AND DESCRIPTION of the surrounding area. Include proximity to streams, waterways, flood plains, wells, springs, etc., and land use features such as housing developments, schools, parks, and playgrounds. Note: Disposal site must not be located in a residential area or a sensitive hydrogeologic environment.

☐ If the disposal location has a NPDES Storm Water Discharge Permit or an Underground Injection Control Permit, the applicant must demonstrate that the disposal will not cause the conditions of the permit to be violated.

☑ How the waste will be disposed, and whether it will be "encapsulated" or "non-encapsulated" disposal. Examples of encapsulated uses are for building, road and parking lot sub base where the waste will be covered by concrete or asphalt, or as an additive to cement or asphalt.

☑ A description of the process generating the waste and how that process integrates into the generator's operations.

☑ Documentation that the waste is not hazardous as defined in OAR Chapter 340, Division 101. The procedure for making a hazardous waste determination is found in OAR 340-102-011.

☑ A demonstration that the waste is inorganic, stable, and physically similar to soil, rock, concrete, brick, building block or tile.

Such demonstration may be made as follows:

- Obtain three representative samples of the waste and provide a discussion of the QA/QC procedures used to obtain the samples. In the event there are significant differences in the results of the analyses, the waste must be sampled further to resolve the discrepancy and all analyses submitted. Note: It is recommended that the samples be composites of statistically selected individuals.

- Select any contaminants of concern that may be in the waste. Provide a rationale for omitting any contaminants indicated in a MSDS. DEQ may require the addition of other contaminants to those selected by the applicant.

- Analyze the extract for the selected contaminants using the methods in EPA Document SW-846 (“totals,” not leaching tests, or “TCLP”). If other analysis methods are used, provide a rationale for their selection. Note: In the event the selected analytical method detects other compounds, report all the detected compounds.

- Compare the concentrations of the analyzed contaminants to the DEQ risk-based screening tables, EPA risk-based screening levels (if the contaminant is not present on DEQ’s table), and DEQ ecological screening levels.

☑ Other information as may be appropriate or requested by DEQ (e.g., ash, TPH, oil/grease).

☑ Processing fee of $500 payable to Department of Environmental Quality (OAR 340-97-120(2)(e)).

D. APPLICATION PROCEDURE

Step 1
Contact a DEQ staff person in the region of the disposal site for assistance with the preparation of the application. DEQ staff will help with determination of the eligibility for a permit exemption of a particular waste or disposal site. Consult the chart below for help with initial DEQ contacts.

Step 2
Mail the original signed application, all attachments, including the fee payment, and one extra copy of the application materials to the appropriate regional office as shown below. Note that DEQ review work will not begin until a complete application packet is received. Incomplete applications may be returned. DEQ recommends the applicant keep a full copy of all application materials to guard against possible loss in transit.

Step 3
DEQ will contact the applicant, acknowledging receipt of the application and will identify the staff person assigned to carry out the review. This staff person will contact the applicant if any additional information is needed.

FEES – MUST ACCOMPANY THIS APPLICATION

Permit Fees: http://www.oregon.gov/deq/mm/swpermits/Pages/Fees.aspx

Make checks payable to Oregon DEQ.

Please mail the original application and one copy of the completed packet to the appropriate regional office. Note that action will not begin on an application until a complete application packet is received. Incomplete applications may be returned. DEQ recommends retaining a copy of all application materials to guard against loss in transit.

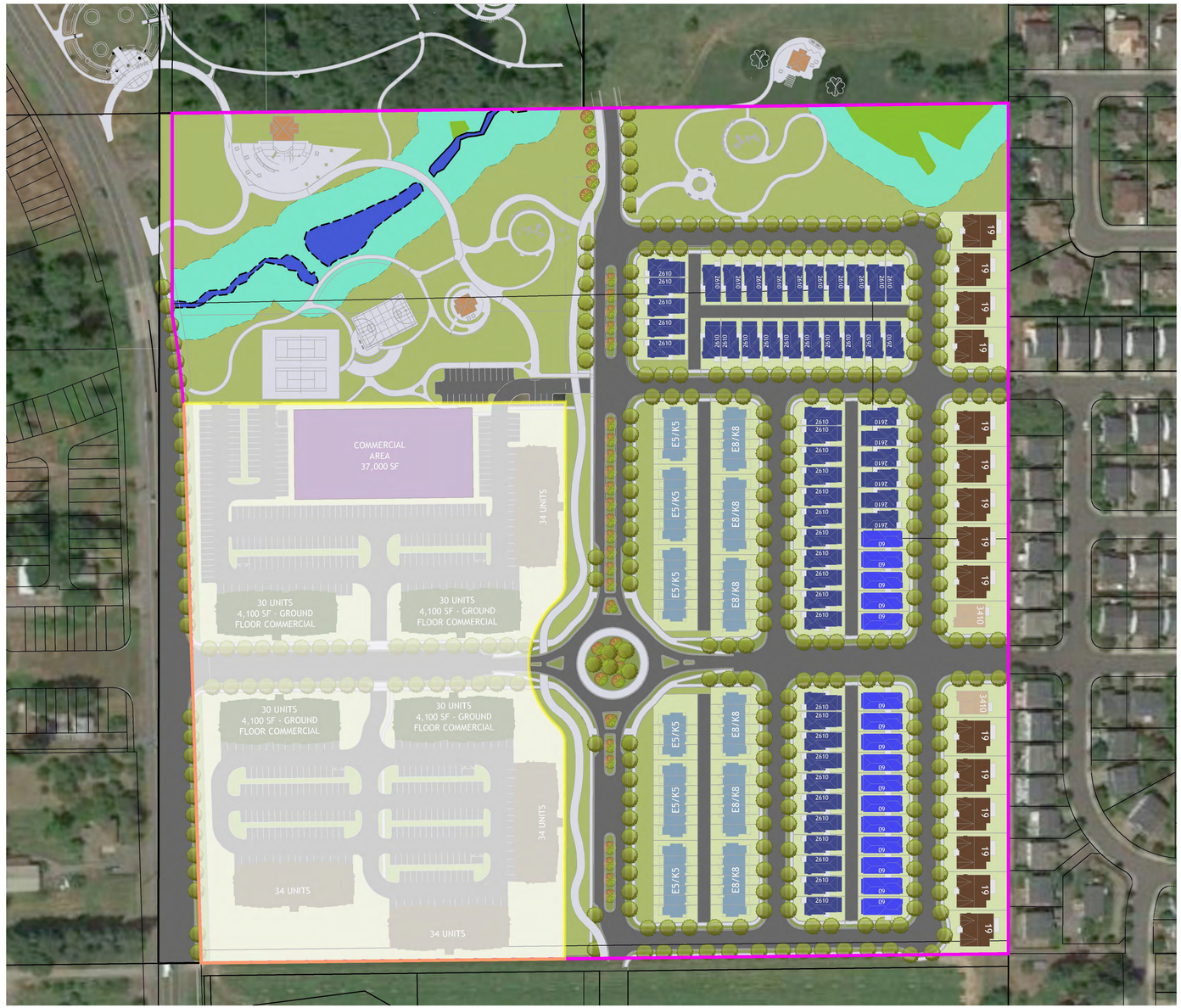
If your facility/project is in this county...	**...then send to this DEQ office**
Baker, Crook, Deschutes, Gilliam, Grant, Harney, Hood River, Jefferson, Klamath, Lake, Malheur, Morrow, Sherman, Umatilla (including Milton- Freewater), Union, Wallowa, Wasco, Wheeler	Eastern Region Materials Management Program 400 E Scenic Drive, Suite 307 The Dalles, OR 97058 Phone: 541-298-7255 ext. 221
Clackamas, Clatsop, Columbia, Multnomah, Tillamook, Washington	Northwest Region Environmental Partnerships 700 NE Multnomah St., Suite 600 Portland, OR 97232 Phone: 503-229-5353 or DEQNWR.SolidWastePermitCoordinator@deq.state.or.us
Benton, Coos, Curry, Douglas, Jackson, Josephine, Lane, Lincoln, Linn, Marion, Polk, Yamhill	Western Region Materials Management Program 165 E Seventh Ave., Suite 100 Eugene, OR 97401 Phone: 541-687-7465

ATTACHMENT B

North Roshak

Residential Area Site Plan

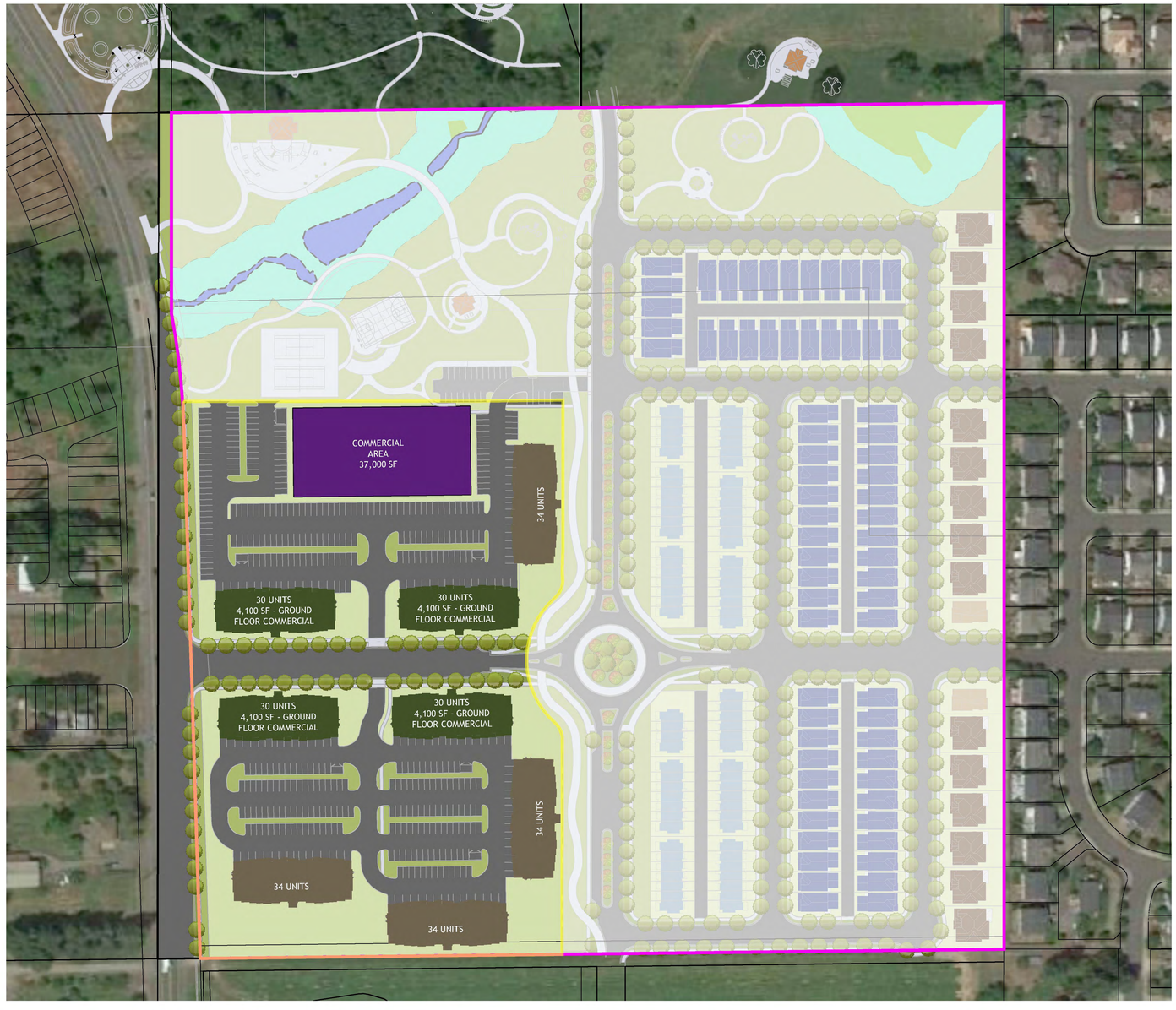
River Terrace



E8/K8	Rowhome Lots	40
E5/K5	Rowhome Lots	37
2610	Small Lots (32')	53
60	Small Lots (32')	16
3410	Medium Lots (45')	2
19	Large Lots (60')	15
	Total	163

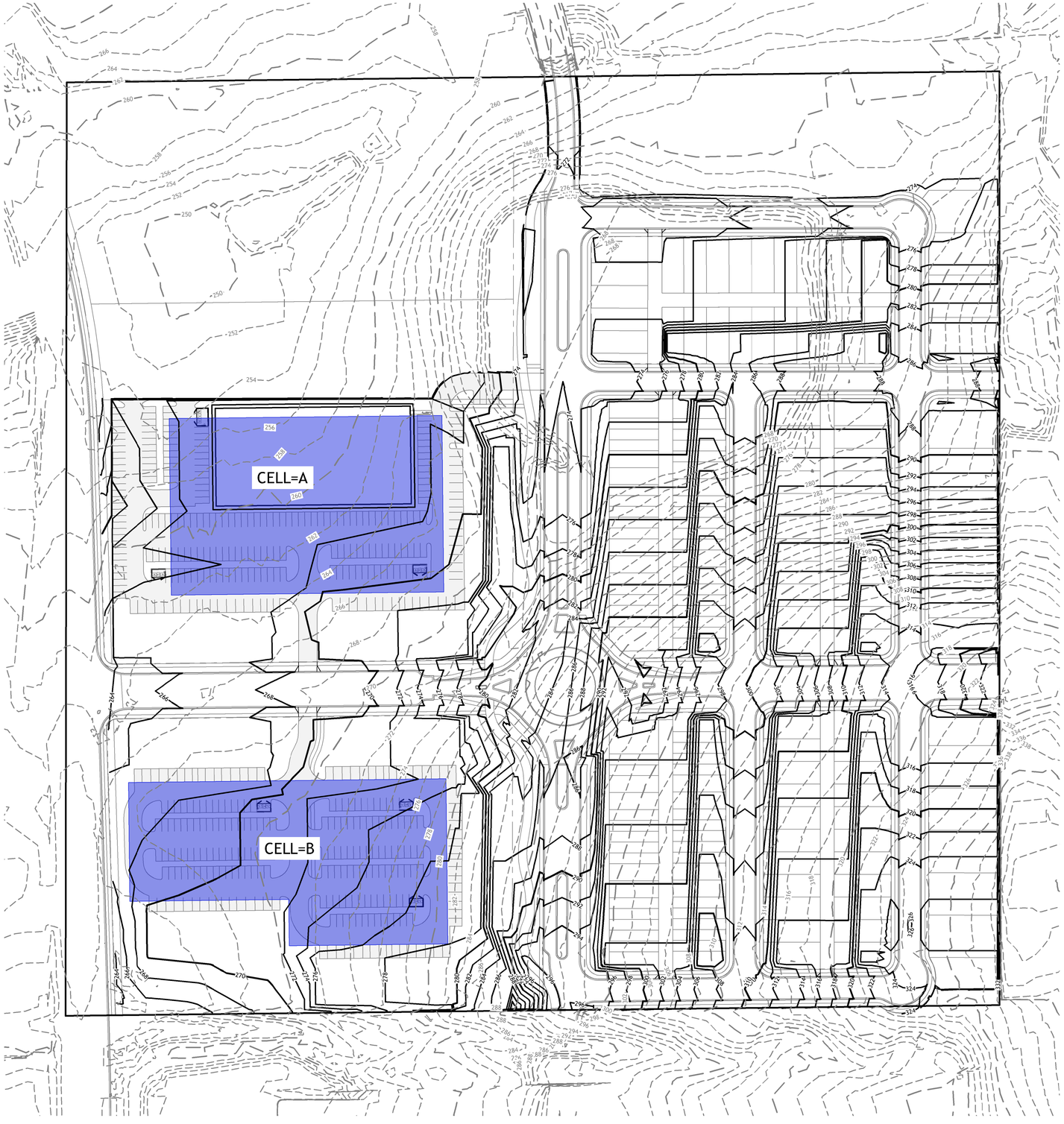
Commercial Area Site Plan

River Terrace



Commercial (37,000 SF)	
Mixed Use Commercial/ Apartments	120
Apartments	136
Total	256

Total Site Area	10.1 Acres
Total Ground Floor Commercial Area In Mixed-Use Buildings	16,400 SF
Total Available Commercial Area In Commercial Building	37,000 SF
Total Commercial Area Available	53,400 SF



SCALE
80 0 40 80
1 INCH = 80 FEET

River Terrace

POLYGON NW COMPANY

Pacific Community Design
[T] 503-941-9484 [F] 503-941-9485
GEODESIGN, INC

REVISIONS
DATE DESCRIPTION

Roshak North

Overall Grading Plan

PROJECT NO.: 395-076
TYPE: PLANNING
REVIEWED BY: JJK

A

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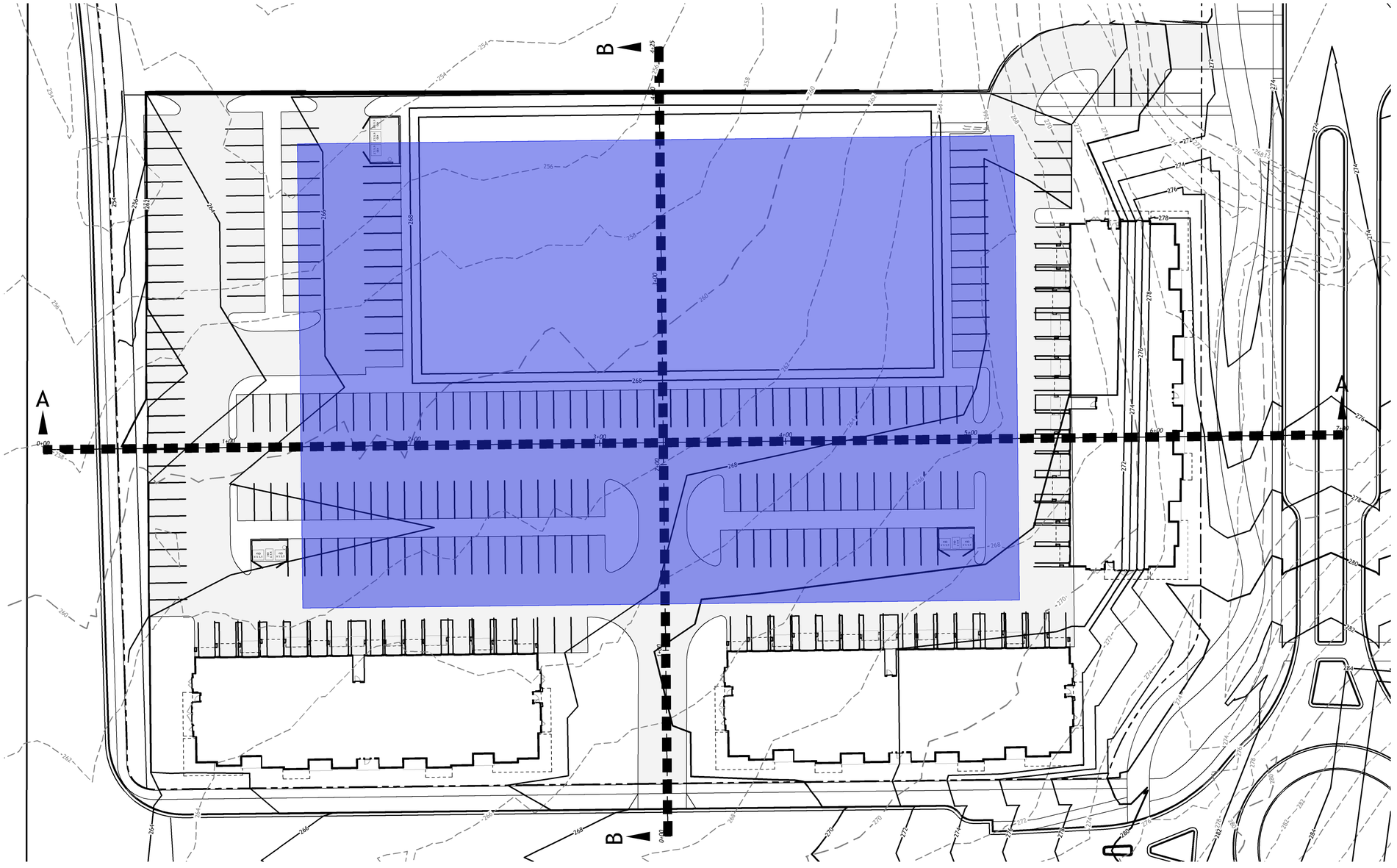

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River Terrace

POLYGON NW COMPANY

Pacific Community Design

[T] 503-941-9484 [F] 503-941-9485

GEODESIGN, INC

REVISIONS

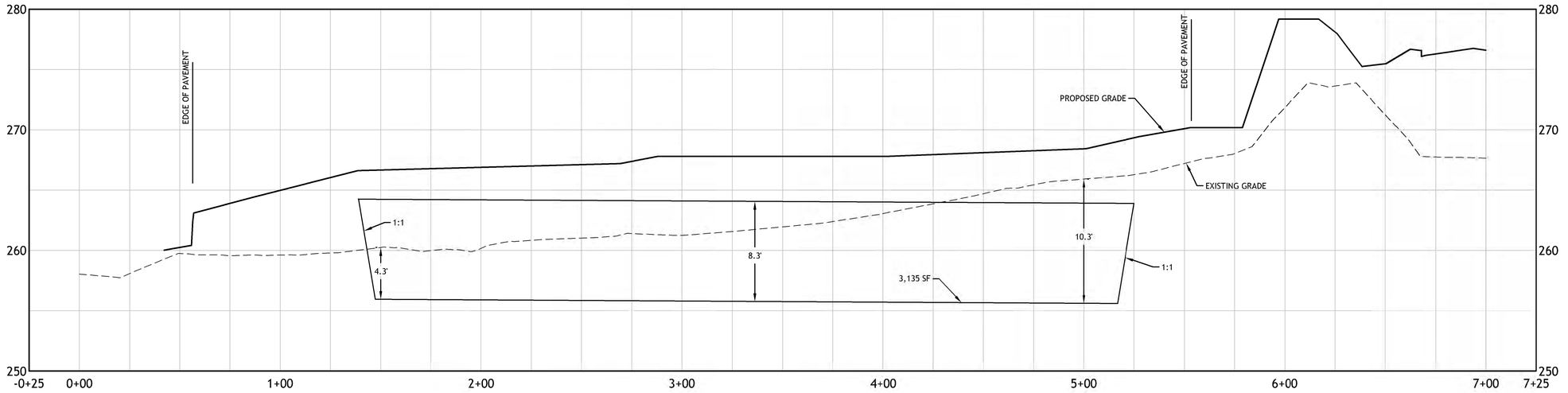
DATE	DESCRIPTION

Roshak North

Private Parking Lot Grading

PROJECT NO.:	395-076
TYPE:	PLANNING
REVIEWED BY:	JJK

B



PROFILE A-A

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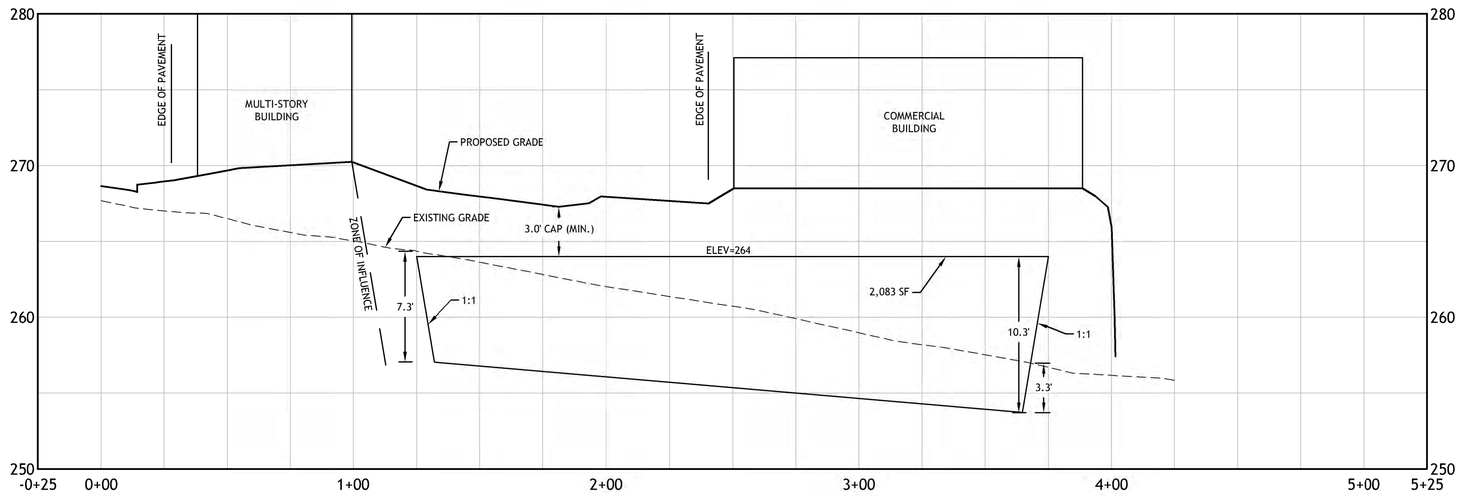
VERTICAL SCALE: 1"=5'



PROFILE B-B

HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=5'

River Terrace

POLYGON NW COMPANY

Pacific Community Design
[T] 503-941-9484 [F] 503-941-9485
GEODESIGN, INC

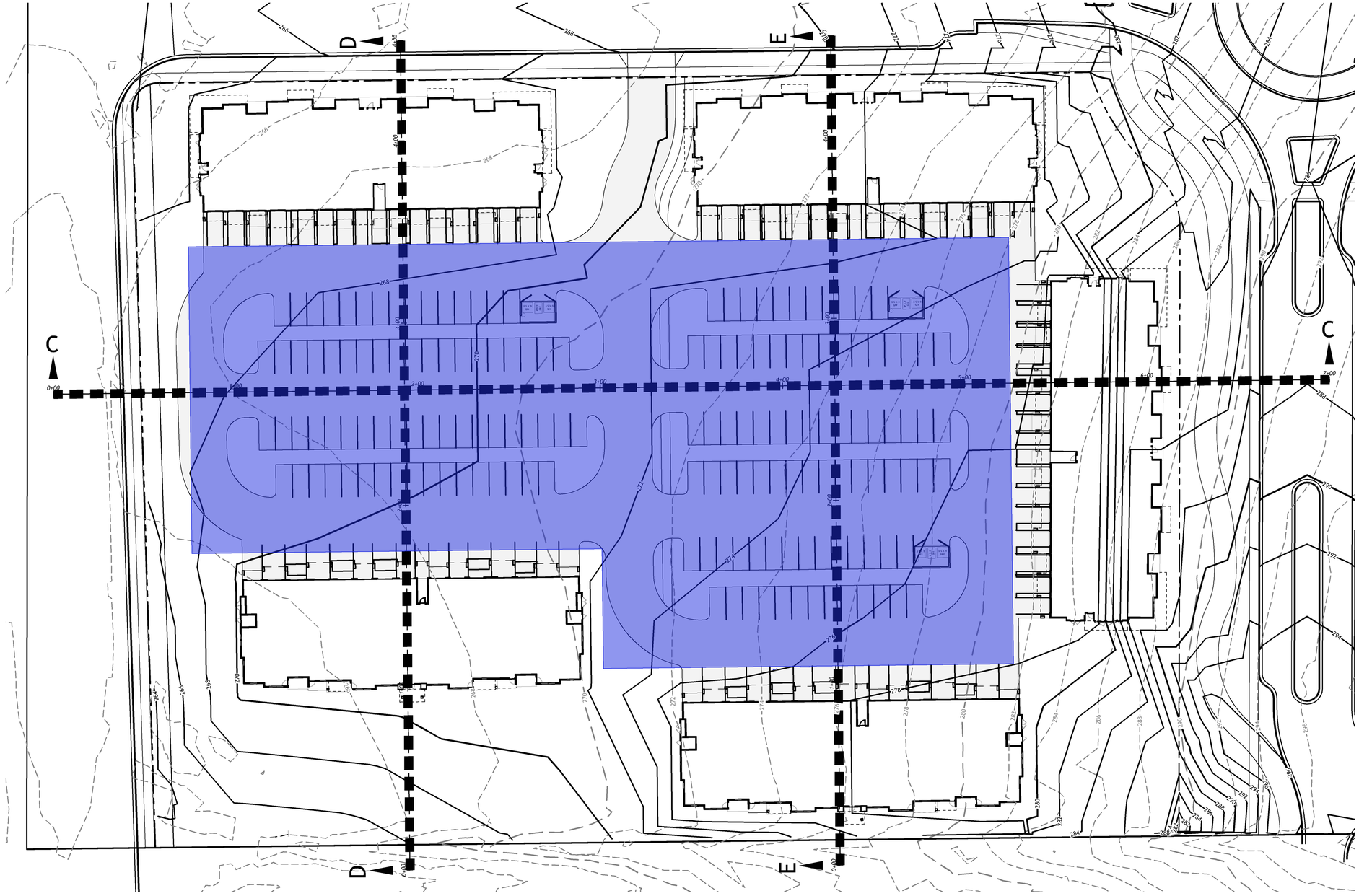
REVISIONS
DATE DESCRIPTION

Roshak North

Private Parking Lot Grading

PROJECT NO.: 395-076
TYPE: PLANNING
REVIEWED BY: JJK

C



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River Terrace

POLYGON NW COMPANY

Pacific Community Design

[T] 503-941-9484 [F] 503-941-9485

GEODESIGN, INC

REVISIONS

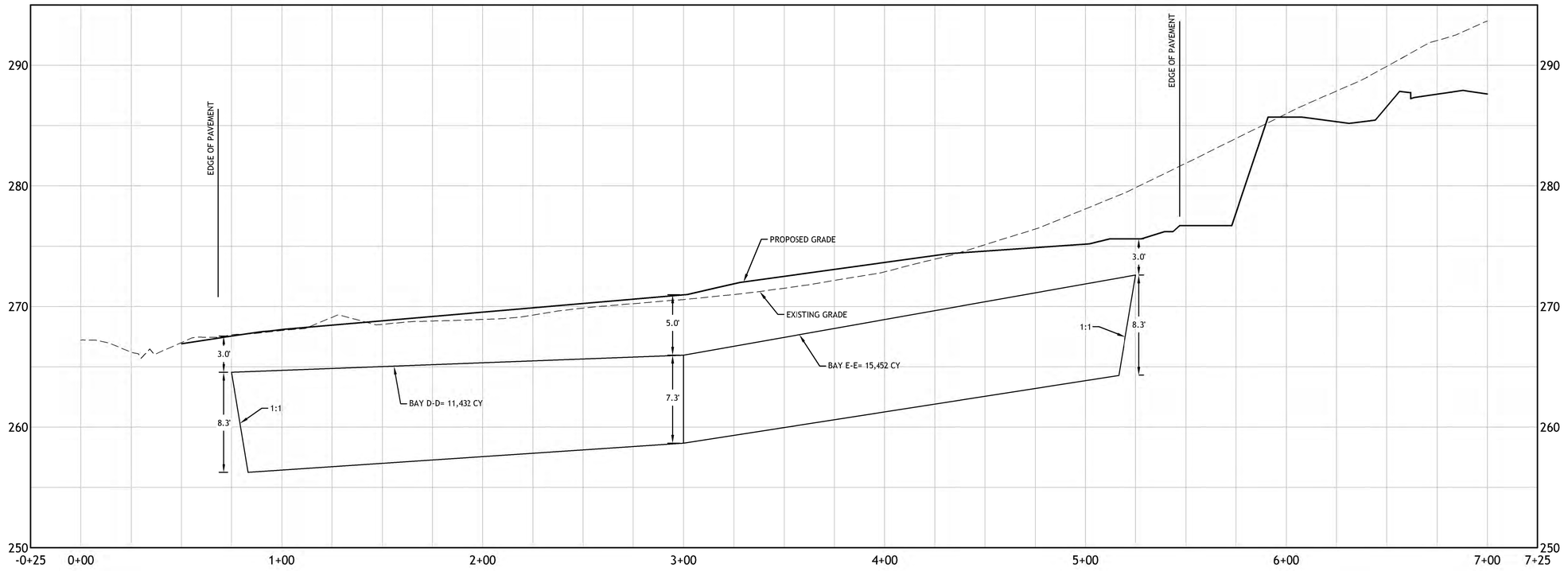
DATE	DESCRIPTION

Roshak North

Private Parking Lot Grading

PROJECT NO.:	395-076
TYPE:	PLANNING
REVIEWED BY:	JJK

D



PROFILE C-C

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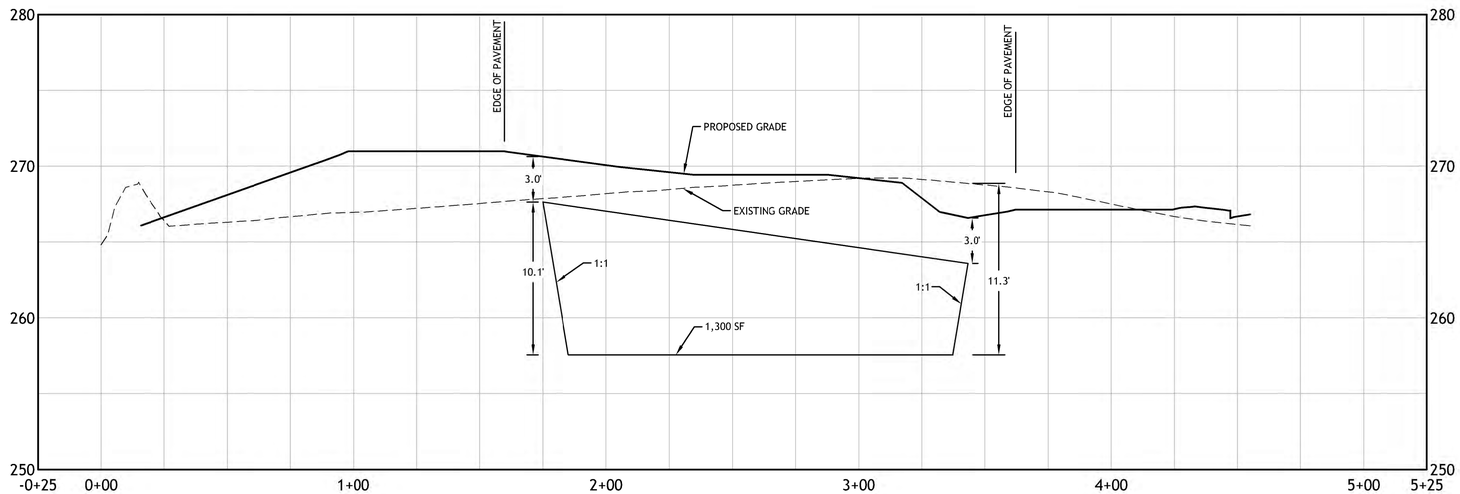
VERTICAL SCALE: 1"=5'



PROFILE D-D

HORIZONTAL SCALE: 1"=30'

VERTICAL SCALE: 1"=5'

River Terrace

POLYGON NW COMPANY

Pacific Community Design

[T] 503-941-9484 [F] 503-941-9485

GEODESIGN, INC

REVISIONS

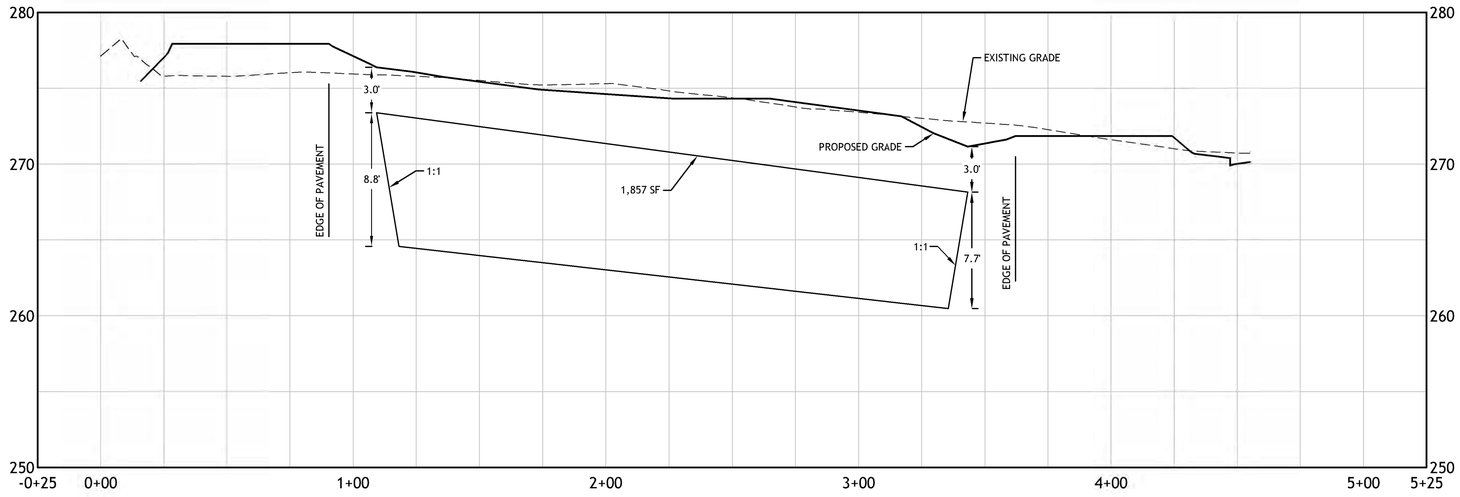
DATE	DESCRIPTION

Roshak North

Private Parking Lot Grading

PROJECT NO.:	395-076
TYPE:	PLANNING
REVIEWED BY:	JJK

E



PROFILE E-E

HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=5'

River Terrace

POLYGON NW COMPANY

Pacific Community Design

[T] 503-941-9484 [F] 503-941-9485

GEODESIGN, INC

REVISIONS

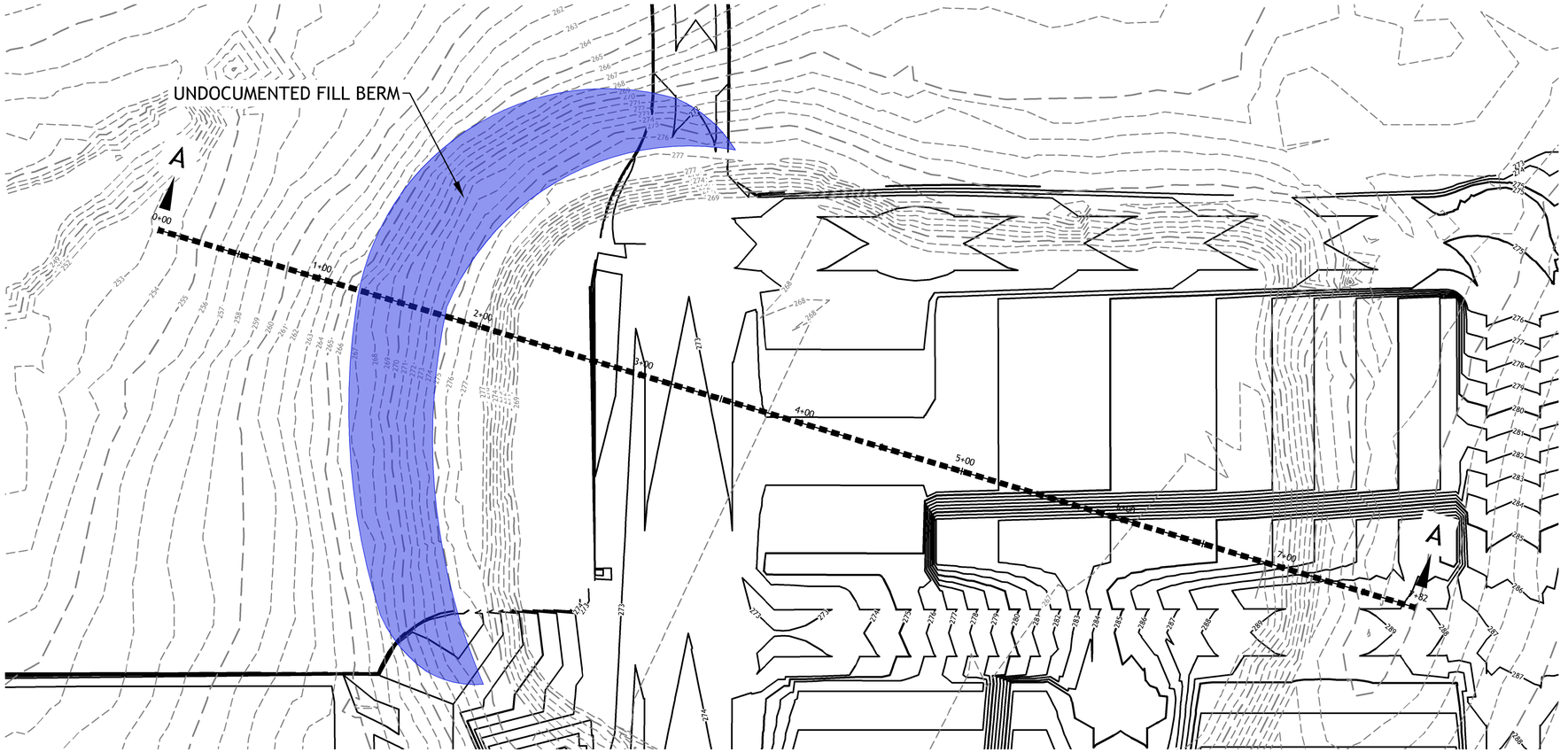
DATE	DESCRIPTION

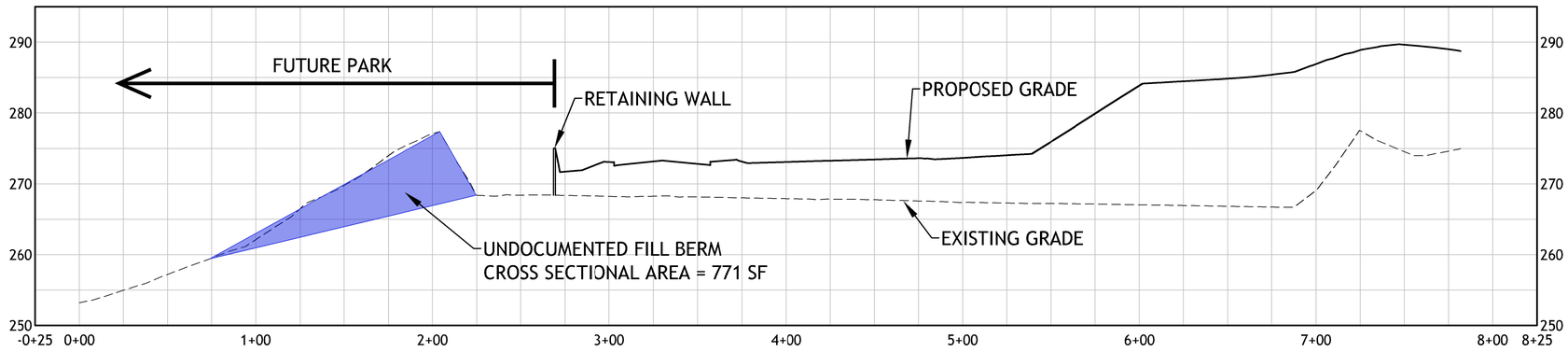
Roshak North

Private Parking Lot Grading

PROJECT NO.:	395-076
TYPE:	PLANNING
REVIEWED BY:	JJK

F





PROFILE A-A

HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 10'

UNDOCUMENTD FILL BERM
LENGTH = 406 FT
VOLUME = (LENGTH) * (CROSS SECTIONAL AREA)
VOLUME = (406 FT) * (771 SF)
VOLUME = 313,026 CF = 11,594 CY

N

SCALE
40 0 20 40
1 INCH = 40 FEET

River Terrace

POLYGON NW COMPANY

Pacific Community Design
[T] 503-941-9484 [F] 503-941-9485
GEODESIGN, INC

REVISIONS
DATE DESCRIPTION

Roshak North

Berm Grading

PROJECT NO.: 395-076
TYPE: PLANNING
REVIEWED BY: PRE

G

ACRONYMS AND ABBREVIATIONS

ACRONYMS AND ABBREVIATIONS

AST	aboveground storage tank
BGS	below ground surface
CFSL	Clean Fill Screening Level
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DEQ	Oregon Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
ICPMS	inductively coupled plasma – mass spectrometry
I.D.	identification
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MRL	method reporting limit
MSL	mean sea level
NC	not calculated
NE	not established
OAR	Oregon Administrative Rule
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
RBC	risk-based concentration
RBDM	*Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites*
RCRA	Resource Conservation and Recovery Act
SWPE	Solid Waste Permit Exemption
TMB	trimethylbenzene
VOC	volatile organic compound