



**City of Portland, Oregon**  
**Bureau of Development Services**  
**Land Use Services**

FROM CONCEPT TO CONSTRUCTION

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[www.portlandoregon.gov/bds](http://www.portlandoregon.gov/bds)

**Date:** May 5, 2016  
**To:** Interested Person  
**From:** David Besley, Land Use Services  
503-823-7282 / [David.Besley@portlandoregon.gov](mailto:David.Besley@portlandoregon.gov)

## **NOTICE OF A TYPE II DECISION ON A PROPOSAL IN YOUR NEIGHBORHOOD**

The Bureau of Development Services has approved a proposal in your neighborhood. The mailed copy of this document is only a summary of the decision. The reasons for the decision are included in the version located on the BDS website <http://www.portlandonline.com/bds/index.cfm?c=46429>. Click on the District Coalition then scroll to the relevant Neighborhood, and case number. If you disagree with the decision, you can appeal. Information on how to do so is included at the end of this decision.

### **CASE FILE NUMBER: LU 16-109683 AD**

#### **GENERAL INFORMATION**

**Applicant:** Mildred White  
BAMA Architecture and Design LLC  
1631 NE Broadway #754  
Portland, OR 97232

**Owner:** Anthony Ton  
Cohaesus Holdings Group 2, LLC  
PO Box 15170  
Portland, OR 97293

**Site Address:** 2558-2560 SE 109TH AVE

**Legal Description:** BLOCK 5 LOT 14 EXC N 68' OF W 110', PITTOCK GROVE  
**Tax Account No.:** R660601890, R660601890, R660601890, R660601890, R660601890  
**State ID No.:** 1S2E10BA 02600, 1S2E10BA 02600, 1S2E10BA 02600, 1S2E10BA 02600, 1S2E10BA 02600  
**Quarter Section:** 3341

**Neighborhood:** Powellhurst-Gilbert, contact Powellhurst-Gilbert at [pgnaboard@gmail.com](mailto:pgnaboard@gmail.com)

**Business District:** Midway, contact David Day at 503-760-7572  
**District Coalition:** East Portland Neighborhood Office, contact Richard Bixby at 503-823-4550

**Plan District:** Johnson Creek Basin

**Zoning:** CG (General Commercial)

**Case Type:** AD (Adjustment Review)  
**Procedure:** Type II, an administrative decision with appeal to the Adjustment Committee.

**Proposal:**

The applicant is proposing to build a new 6,725 square-foot residential care facility on a flag lot. The “flag pole” (the connection from SE 109<sup>th</sup> Avenue to the buildable area) is 12 feet wide. The required minimum driveway width is 9 feet, which leaves only 3 feet for a pedestrian connection. The Portland Zoning Code requires that the pedestrian circulation system be at least 6 feet wide (Section 33.130.240.B.2.a). Rather than constructing a 3-foot wide sidewalk, the applicant is proposing to pave the 12-foot driveway with pavers, which would create a more pedestrian-oriented design that accommodates cars and pedestrians. While the paver system will meet the pedestrian connection width standard, there is an additional standard that the pedestrian access be a raised path or be separated from the auto travel lane by a raised curb, bollards, landscaping or other physical barrier. If a raised path is used it must be at least 4 inches high and the ends of the raised portions must be equipped with curb ramps (Section 33.130.240.B.2.c). Approval through an Adjustment is therefore necessary to waive the requirement that pedestrian paths be raised and separated from the auto travel lane.

**Relevant Approval Criteria:**

In order to be approved, this proposal must comply with the approval criteria of Title 33. Adjustment requests will be approved if the review body finds that the applicant has shown that approval criteria A. through F. of Section 33.805.040, Adjustment Approval Criteria, have been met.

**ANALYSIS**

**Site and Vicinity:** The 10,240 square foot site is located on the east side of SE 109<sup>th</sup> Avenue, about 300 feet south of the intersection of SE 109<sup>th</sup> Avenue and SE Division Street. The relatively flat site is developed with a 1,612 square foot residence that is proposed to be removed. The surrounding vicinity is developed with a mix of commercial, single and multi-dwelling residences.

**Zoning:** The General Commercial zone is intended to allow auto-accommodating commercial development, including a full range of retail and service businesses. Development standards are intended to allow for flexibility of development while maintaining compatibility within the City’s various neighborhoods. Regulations of the Johnson Creek Basin Plan District are intended to provide for the safe, orderly, and efficient development of lands which are subject to a number of physical constraints, including significant natural resources, steep and hazardous slopes, flood plains, wetlands, and the lack of streets, sewers, and water services and should not be impacted by the Adjustment proposal.

**Land Use History:** City records indicate there are no prior land use reviews for this site.

**Agency Review:** A “Notice of Proposal in Your Neighborhood” was mailed March 30, 2016. The following Bureaus have responded with the following information:

- The Water Bureau responded with no concerns and provided information on water service (Exhibit E-1);
- The Fire Prevention Division responded with no concerns and provided information on Fire Code Requirements (Exhibit E-2);
- The Life Safety section of the Bureau of Development Services (BDS) responded with no concerns and provided Building Code information (Exhibit E-3); and
- The Bureau of Environmental Services responded with no concerns and provided information on sanitary service and stormwater disposal requirements (Exhibit E-4).

The following Bureaus have responded with no concerns:

- The Site Development Section of BDS; and
- The Portland Bureau of Transportation (PBOT).

**Neighborhood Review:** One written response was received from a neighbor (Exhibit F-1) noting safety concerns; specifically that two cars cannot pass one another because of the narrow 12-

foot wide driveway and that vegetation and fencing on neighboring properties obscures views. Suggestions were included such as limiting the driveway use to pedestrian only, having drivers who want to access the site do so via private neighboring properties, rezoning the site as residential, and merging the site with a neighboring lot so that it is no longer a flag lot.

**Staff Response:** Relevant concerns are addressed in the Zoning Code Approval Criteria findings below. The applicant notes in their narrative that the driveway will be used minimally, and typically just to drop off residents after doctor visits or other outings (Exhibit A).

## **ZONING CODE APPROVAL CRITERIA**

### **33.805.040 Adjustment Approval Criteria**

Adjustment requests will be approved if the review body finds that the applicant has shown that approval criteria A. through F. below have been met.

- A.** Granting the adjustment will equally or better meet the purpose of the regulation to be modified; and

**Findings:** The applicant has requested an Adjustment to the requirement that pedestrian paths be raised and separated from the auto travel lane. The relevant purpose statements and associated findings are found below:

#### **33.130.240 Pedestrian Standards**

*The pedestrian standards encourage a safe, attractive, and usable pedestrian circulation system in all developments. They ensure a direct pedestrian connection between abutting streets and buildings on the site, and between buildings and other activities within the site. In addition, they provide for connections between adjacent sites, where feasible.*

Because the “flag pole” portion of the lot is only 12-feet wide, building a 6-foot wide pedestrian access and a 2-way drive aisle is not possible. PBOT and the Fire Prevention Division require a minimum driveway width of 9-feet, which leaves an insufficient amount of space for a safe, attractive, and usable pedestrian circulation system. Given the proposed “residential care facility” use of the site, there will likely be a higher demand for a wider sidewalk that can accommodate the disabled. The applicant therefore proposed paving the entire access area (including the “flag pole” and turn-around area at the main entrance) with brick-shaped pavers. Unlike a concrete or asphalt driveway, pavers are designed at a pedestrian scale; the herringbone patterned pavers will provide an attractive, safe, pedestrian-friendly walkway, especially compared to the alternative, which would be a very narrow concrete sidewalk. The pavers will also slow down cars due to the change in texture and materiality from that of the street, which will make conditions safer for pedestrians. The pavers are proposed to be set with aggregate rather than concrete, which will allow for the permeation of water and minimize surface water pooling, further encouraging a safe, attractive, and usable pedestrian circulation system. A condition will require that pavers be used as shown on Exhibits C.2 and C.3.

The proposal is for a residential care facility, which will entail relatively few vehicle trips, particularly when compared to office, multi-dwelling residential, or retail sales and services uses that are allowed in the CG zone. Furthermore, the fact that there will be no vehicle parking on site will minimize the demand to access the driveway with a vehicle.

Both PBOT and the Fire Prevention Division have expressed no concerns with the proposal.

***As conditioned, this criterion is met.***

- B.** If in a residential zone, the proposal will not significantly detract from the livability or appearance of the residential area, or if in an OS, C, E, or I zone, the proposal will be consistent with the classifications of the adjacent streets and the desired character of the area; and

**Findings:** PBOT has indicated no concerns regarding the proposal's consistency with the classification of adjacent streets.

The Portland Zoning Code defines "desired character" as "the preferred and envisioned character (usually of an area) based on the purpose statement or character statement of the base zone, overlay zone, or plan district. It also includes the preferred and envisioned character based on any adopted area plans or design guidelines for an area." In this instance, *Desired Character* is defined by the character statement of the CG zone, the Johnson Creek Basin Plan District, the Outer Southeast Community Plan and Powellhurst-Gilbert Neighborhood Plan; there are no overlay zones or design guidelines.

The General Commercial (CG) character statement notes that this zone is intended to allow auto-accommodating commercial development, including a full range of retail and service businesses. The zone's development standards promote attractive development, an open and pleasant street appearance, and compatibility with adjacent residential areas. Development is intended to be aesthetically pleasing for motorists, transit users, pedestrians, and the businesses themselves.

While the CG zone allows auto-accommodating commercial development, including retail and service businesses, the proposed residential care facility will require relatively few vehicle trips; however, this use promotes a more open and pleasant street appearance and compatibility with adjacent residential areas (including an R2a zone to the south) due to the proposed pavers. The pavers will be aesthetically pleasing for motorists, transit users, pedestrians, and the business itself.

The Johnson Creek Basin Plan District Purpose is intended to provide "for the safe, orderly, and efficient development of lands which are subject to a number of physical constraints, including significant natural resources, steep and hazardous slopes, flood plains, wetlands, and the lack of streets, sewers, and water services. At certain locations, the density of development is limited by applying special regulations to new land division proposals. In addition, restrictions are placed on all new land uses and activities to reduce stormwater runoff, provide groundwater recharge, reduce erosion, enhance water quality, and retain and enhance native vegetation throughout the plan district."

None of the noted physical constraints are found on site. As noted above, the pavers are proposed to be set with aggregate rather than concrete, which will allow for the permeation of water and minimize surface water pooling. Drainage is also provided by perimeter landscaping and by a 48" diameter drywell to meet City of Portland Bureau of Environmental Standards.

The Powellhurst-Gilbert Plan includes a goal to develop pedestrian pathways which link residential areas with nodes of commercial and community service activities (page 1, Goal I). The Plan includes an objective to make the area "an enjoyable and pleasant place to live by improving the physical appearance of the neighborhood, improving commercial viability, and residential diversity (page 17, Objective A)." Also, the plan includes an objective to identify traffic-control options that increase safety, foster opportunity for commercial and housing development (page 20, Objective 1).

This proposal – which includes the development of housing for people with disabilities and a safe and attractive pedestrian access – supports the Powellhurst-Gilbert Plan, as the improvements will link residential and commercial areas, support residentially

diverse housing, and increase safety. For these reasons, this proposal is consistent with the Desired Character of the area.

***This criterion is met.***

- C.** If more than one Adjustment is being requested, the cumulative effect of the adjustments results in a project which is still consistent with the overall purpose of the zone; and

**Findings:** Only one Adjustment is requested; therefore, this criterion is not applicable.

- D.** City-designated scenic resources and historic resources are preserved;

**Findings:** City designated scenic resources are identified on the Official Zoning Map with a lower case “s” and historic resources are designated by a large dot or as being within the boundaries of a Historic or Conservation district. There are no such resources present on the site; therefore, this criterion is not applicable.

- E.** Any impacts resulting from the adjustment are mitigated to the extent practical; and

**Findings:** As noted above, using pavers will provide an attractive, pedestrian-friendly walkway, and they will slow down cars due to the change in texture and materiality from that of the street, which will make conditions safer for pedestrians. Impacts resulting from the adjustment are therefore mitigated to the extent practical.

***This criterion is met.***

- F.** If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable;

**Findings:** Environmental overlay zones are designated on the Official Zoning Map with either a lowercase “p” (Environmental Protection overlay zone) or a “c” (Environmental Conservation overlay zone). No environmental zoning is applied to the site; therefore, this criterion is not applicable.

## **DEVELOPMENT STANDARDS**

Unless specifically required in the approval criteria listed above, this proposal does not have to meet the development standards in order to be approved during this review process. The plans submitted for a building or zoning permit must demonstrate that all development standards of Title 33 can be met, or have received an Adjustment or Modification via a land use review prior to the approval of a building or zoning permit.

## **CONCLUSIONS**

The applicant has requested an Adjustment to waive the requirement that pedestrian paths be raised and separated from the auto travel lane and utilize the 12-foot driveway for both pedestrian and vehicle access for a proposed assisted care facility. Due to the narrowness of the “flag pole” part of the lot and the inability to fit both a driveway and a sufficient pedestrian sidewalk, the applicant proposes paving the entire access area (including the “flag pole” and turn-around area at the main entrance) with brick-shaped pavers. The pavers will provide an attractive, safe, pedestrian-friendly walkway. The pavers will also slow down cars due to the change in texture and material from that of the street, which will make conditions safer for pedestrians. The pavers are proposed to be set with aggregate rather than concrete, which will allow for the permeation of water and minimize surface water pooling, further encouraging a safe, attractive, and usable pedestrian circulation system. There will be no vehicle parking on site, which will minimize the demand to access the driveway with a vehicle. The proposal meets the applicable approval criteria and should therefore be approved.

## ADMINISTRATIVE DECISION

Approval of an Adjustment to waive the requirement that pedestrian paths be raised and separated from the auto travel lane (Section 33.130.240.B.2.c) and utilize the 12-foot driveway for both pedestrian and vehicle access for a proposed assisted care facility, per the approved site plans, Exhibits C.1 through C.3, signed and dated May 2, 2016, subject to the following conditions:

- A. As part of the building permit application submittal, the following development-related condition (B) must be noted on each of the 4 required site plans or included as a sheet in the numbered set of plans. The sheet on which this information appears must be labeled, "ZONING COMPLIANCE PAGE - # LU 16-109683 AD." All requirements must be graphically represented on the site plan, landscape, or other required plan and must be labeled "REQUIRED."
- B. Brick pavers must be used as shown on Exhibits C.2 and C.3.

**Staff Planner: David Besley**



**Decision rendered by:** \_\_\_\_\_ **on May 2, 2016.**  
By authority of the Director of the Bureau of Development Services

**Decision mailed: May 5, 2016**

**About this Decision.** This land use decision is **not a permit** for development. Permits may be required prior to any work. Contact the Development Services Center at 503-823-7310 for information about permits.

**Procedural Information.** The application for this land use review was submitted on January 22, 2016, and was determined to be complete on March 24, 2016.

*Zoning Code Section 33.700.080* states that Land Use Review applications are reviewed under the regulations in effect at the time the application was submitted, provided that the application is complete at the time of submittal, or complete within 180 days. Therefore this application was reviewed against the Zoning Code in effect on January 22, 2016.

*ORS 227.178* states the City must issue a final decision on Land Use Review applications within 120-days of the application being deemed complete. The 120-day review period may be waived or extended at the request of the applicant. In this case, the applicant did not waive or extend the 120-day review period. Unless further extended by the applicant, **the 120 days will expire on: July 22, 2016.**

**Some of the information contained in this report was provided by the applicant.**

As required by Section 33.800.060 of the Portland Zoning Code, the burden of proof is on the applicant to show that the approval criteria are met. The Bureau of Development Services has independently reviewed the information submitted by the applicant and has included this information only where the Bureau of Development Services has determined the information satisfactorily demonstrates compliance with the applicable approval criteria. This report is the decision of the Bureau of Development Services with input from other City and public agencies.

**Conditions of Approval.** If approved, this project may be subject to a number of specific conditions, listed above. Compliance with the applicable conditions of approval must be documented in all related permit applications. Plans and drawings submitted during the permitting process must illustrate how applicable conditions of approval are met. Any project

elements that are specifically required by conditions of approval must be shown on the plans, and labeled as such.

These conditions of approval run with the land, unless modified by future land use reviews. As used in the conditions, the term “applicant” includes the applicant for this land use review, any person undertaking development pursuant to this land use review, the proprietor of the use or development approved by this land use review, and the current owner and future owners of the property subject to this land use review.

**Appealing this decision.** This decision may be appealed to the Adjustment Committee, which will hold a public hearing. Appeals must be filed **by 4:30 PM on May 19, 2016** at 1900 SW Fourth Ave. Appeals can be filed at the Development Services Center Monday through Wednesday and Fridays between 8:00 am to 3:00 pm and on Thursdays between 8:00 am to 12:00 pm. After 3:00 pm Monday through Wednesday and Fridays, and after 12:00 pm on Thursdays, appeals must be submitted at the reception desk on the 5<sup>th</sup> floor. **An appeal fee of \$250 will be charged.** The appeal fee will be refunded if the appellant prevails. There is no fee for ONI recognized organizations appealing a land use decision for property within the organization’s boundaries. The vote to appeal must be in accordance with the organization’s bylaws. Assistance in filing the appeal and information on fee waivers is available from BDS in the Development Services Center. Please see the appeal form for additional information.

The file and all evidence on this case are available for your review by appointment only. Please call the Request Line at our office, 1900 SW Fourth Avenue, Suite 5000, phone 503-823-7617, to schedule an appointment. I can provide some information over the phone. Copies of all information in the file can be obtained for a fee equal to the cost of services. Additional information about the City of Portland, city bureaus, and a digital copy of the Portland Zoning Code is available on the internet at [www.portlandonline.com](http://www.portlandonline.com).

**Attending the hearing.** If this decision is appealed, a hearing will be scheduled, and you will be notified of the date and time of the hearing. The decision of the Adjustment Committee is final; any further appeal must be made to the Oregon Land Use Board of Appeals (LUBA) within 21 days of the date of mailing the decision, pursuant to ORS 197.620 and 197.830. Contact LUBA at 775 Summer St NE, Suite 330, Salem, Oregon 97301-1283, or phone 1-503-373-1265 for further information.

Failure to raise an issue by the close of the record at or following the final hearing on this case, in person or by letter, may preclude an appeal to the Land Use Board of Appeals (LUBA) on that issue. Also, if you do not raise an issue with enough specificity to give the Adjustment Committee an opportunity to respond to it, that also may preclude an appeal to LUBA on that issue.

**Recording the final decision.**

If this Land Use Review is approved the final decision must be recorded with the Multnomah County Recorder. A few days prior to the last day to appeal, the City will mail instructions to the applicant for recording the documents associated with their final land use decision.

- *Unless appealed*, The final decision may be recorded on or after **May 20, 2016– (the day following the last day to appeal).**
- A building or zoning permit will be issued only after the final decision is recorded.

The applicant, builder, or a representative may record the final decision as follows:

- By Mail: Send the two recording sheets (sent in separate mailing) and the final Land Use Review decision with a check made payable to the Multnomah County Recorder to: Multnomah County Recorder, P.O. Box 5007, Portland OR 97208. The recording fee is identified on the recording sheet. Please include a self-addressed, stamped envelope.

- In Person: Bring the two recording sheets (sent in separate mailing) and the final Land Use Review decision with a check made payable to the Multnomah County Recorder to the County Recorder's office located at 501 SE Hawthorne Boulevard, #158, Portland OR 97214. The recording fee is identified on the recording sheet.

For further information on recording, please call the County Recorder at 503-988-3034  
For further information on your recording documents please call the Bureau of Development Services Land Use Services Division at 503-823-0625.

**Expiration of this approval.** An approval expires three years from the date the final decision is rendered unless a building permit has been issued, or the approved activity has begun.

Where a site has received approval for multiple developments, and a building permit is not issued for all of the approved development within three years of the date of the final decision, a new land use review will be required before a permit will be issued for the remaining development, subject to the Zoning Code in effect at that time.

**Applying for your permits.** A building permit, occupancy permit, or development permit may be required before carrying out an approved project. At the time they apply for a permit, permittees must demonstrate compliance with:

- All conditions imposed herein;
- All applicable development standards, unless specifically exempted as part of this land use review;
- All requirements of the building code; and
- All provisions of the Municipal Code of the City of Portland, and all other applicable ordinances, provisions and regulations of the City.

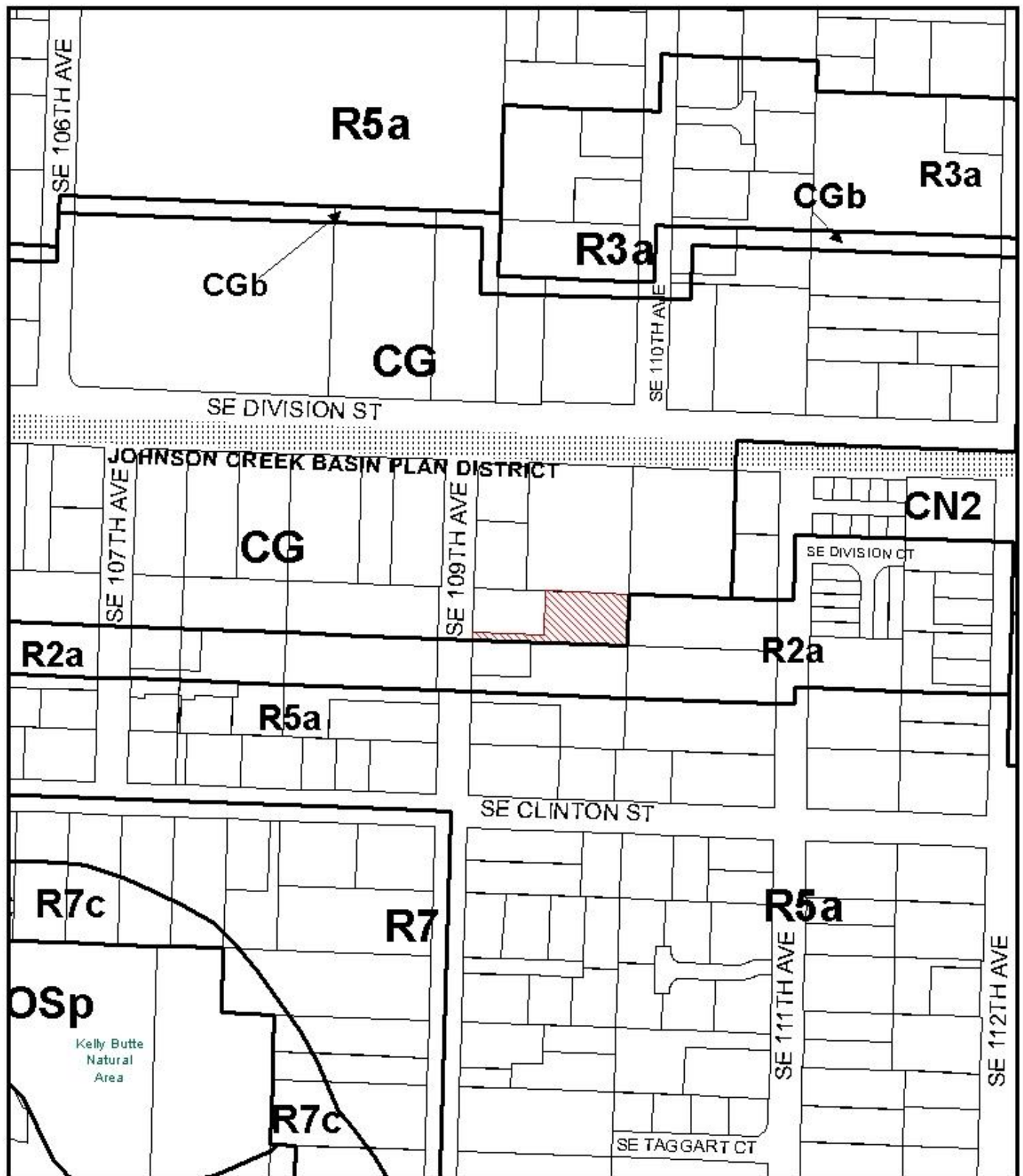
#### **EXHIBITS**

NOT ATTACHED UNLESS INDICATED

- A. Applicant's Statement
- B. Zoning Map (attached)
- C. Plans/Drawings:
  - 1. Site Plan (attached)
  - 2. Paver Details (attached)
  - 3. Paver Section Drawings (attached)
- D. Notification information:
  - 1. Mailing list
  - 2. Mailed notice
- E. Agency Responses:
  - 1. Water Bureau
  - 2. Fire Prevention Division
  - 3. Life Safety Section of BDS
  - 4. Bureau of Environmental Services
- F. Correspondence:
  - 1. Kathy Austen, April 20, 2016, Letter expressing concerns
- G. Other:
  - 1. Original LU Application and Receipt
  - 2. Incomplete letter from staff to applicant, sent April 20, 2016

**The Bureau of Development Services is committed to providing equal access to information and hearings. Please notify us no less than five business days prior to the event if you need special accommodations. Call 503-823-7300 (TTY 503-823-6868).**





# ZONING



This site lies within the:  
JOHNSON CREEK BASIN PLAN DISTRICT

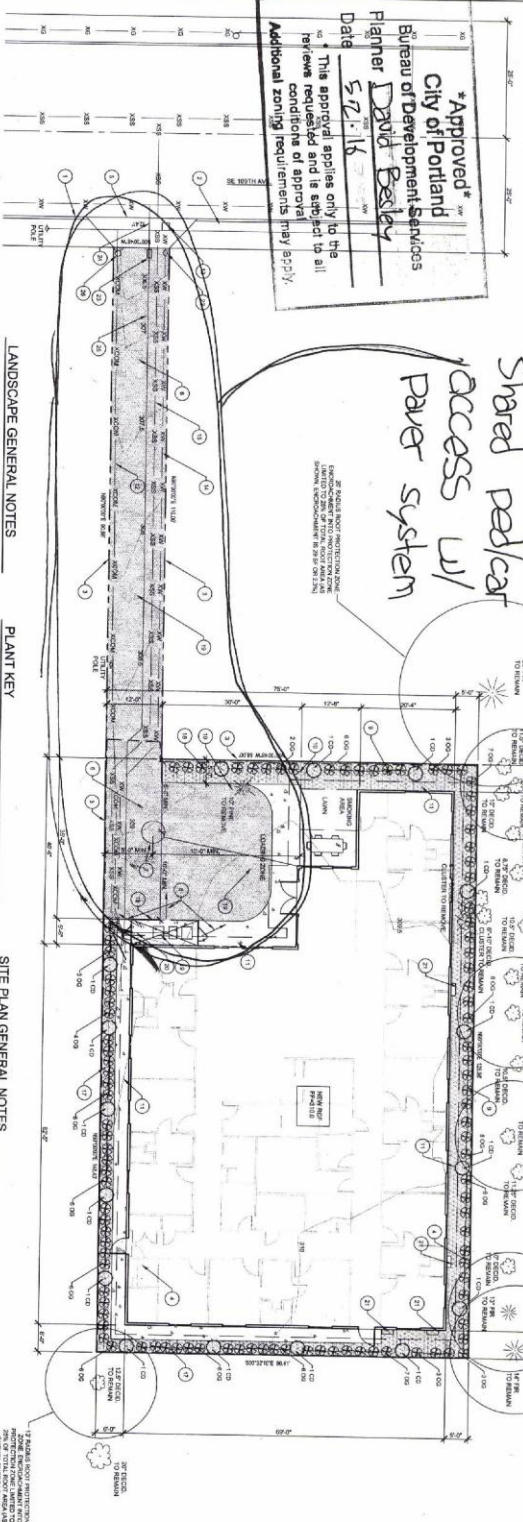
File No. LU 16-109683 AD  
 1/4 Section 3341  
 Scale 1 inch = 200 feet  
 State\_Id 1S2E10BA 2600  
 Exhibit B (Jan 27, 2016)



**\*Approved\***  
City of Portland  
Bureau of Development Services

Planner **David Belsky**  
Date **5.2.16**

This approval applies only to the reviews requested and is subject to all conditions of approval. Additional zoning requirements may apply.



**ZONING INFORMATION**

Zone: **OSU**  
Use: **Office**  
Height: **40' max**  
Area: **10,000 sq ft max**

**LANDSCAPE GENERAL NOTES**

1. LANDSCAPE SHALL BE DESIGNED TO COMPLEMENT THE ARCHITECTURE AND PROVIDE A HIGH QUALITY ENVIRONMENT.  
2. PLANTING SHALL BE DONE IN ACCORDANCE WITH THE CITY OF PORTLAND LANDSCAPE DESIGN GUIDELINES.  
3. IRRIGATION SYSTEM SHALL BE INSTALLED TO MAINTAIN PLANT HEALTH AND WATER EFFICIENCY.

**PLANT KEY**

SYMBOL	PLANT NAME	QUANTITY
1	DOGWOOD	10
2	HYDRANGEA	5
3	SPRING DAISY	20

**INSTALLATION NOTES**

1. ALL PLANTING SHALL BE DONE IN ACCORDANCE WITH THE CITY OF PORTLAND LANDSCAPE DESIGN GUIDELINES.  
2. IRRIGATION SYSTEM SHALL BE INSTALLED TO MAINTAIN PLANT HEALTH AND WATER EFFICIENCY.

**SITE PLAN GENERAL NOTES**

1. THE SITE PLAN SHALL BE DESIGNED TO COMPLEMENT THE ARCHITECTURE AND PROVIDE A HIGH QUALITY ENVIRONMENT.  
2. PLANTING SHALL BE DONE IN ACCORDANCE WITH THE CITY OF PORTLAND LANDSCAPE DESIGN GUIDELINES.

**SITE PLAN KEYNOTES**

- 1. THE SITE PLAN SHALL BE DESIGNED TO COMPLEMENT THE ARCHITECTURE AND PROVIDE A HIGH QUALITY ENVIRONMENT.
- 2. PLANTING SHALL BE DONE IN ACCORDANCE WITH THE CITY OF PORTLAND LANDSCAPE DESIGN GUIDELINES.
- 3. IRRIGATION SYSTEM SHALL BE INSTALLED TO MAINTAIN PLANT HEALTH AND WATER EFFICIENCY.

**109th Ave**  
**RCF**

**BAMA**  
Architecture and Design  
1331 NE Broadway St. #1754  
Portland, Oregon 97232  
PH: 503.253.4283  
FX: 503.261.1390

**SD1.1**  
0111 11.16



Holland 8 cm pavers offer the old-world charm of a simple brick shape combined with the renowned durability of interlocking concrete pavers. Simple in design, Holland 8 cm pavers are capable of meeting the demands of both architects and designers for a beautiful yet durable paving surface. Holland 8 cm pavers provide the additional structure needed for heavy-duty pavements.

Holland 8 cm pavers are perfect for residential, municipal, commercial and industrial applications, including:

- Driveways
- Industrial plants
- Parking lots
- Industrial yards
- Gas stations
- Factory streets
- Bridge abutments
- Highway ramps
- Crosswalks
- Bridge underpasses
- Street medians
- Bus terminals
- Intersections
- Industrial/commercial ports



## MUTUAL MATERIALS TECH SHEET

# Holland 8 cm



TRADITIONAL



## STANDARD SPECIFICATION

Holland 8 cm pavers are manufactured to industry standard specifications ASTM: C 936, and CSA: A 231.2.

## AVAILABLE COLORS

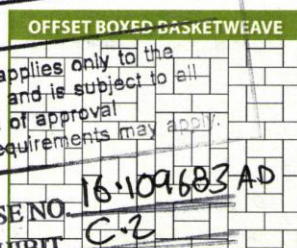
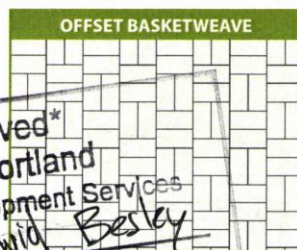
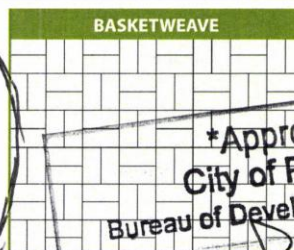
For more information regarding custom colors, please contact a sales representative. Custom colors may be restricted by the size of the order or project.

PRODUCT	COVERAGE	PER PALLET	WEIGHT
Holland 8 cm	4.63 pcs / ft <sup>2</sup> (39.5 pcs / m <sup>2</sup> )	432 pcs	93.23 ft <sup>2</sup> (8.1 m <sup>2</sup> )
		8 lb / pc (4.7 kg / pc)	3,300 lbs / pallet (1,500 kg / pallet)

*All Weight per Pallet noted above includes a 50 lb pallet weight.*

*\* All metric dimensions are soft converted to Imperial. Dimensions and coverage include 1/8" (1.5 mm) joint*

## INSTALLATION PATTERNS



\*Approved\*  
City of Portland  
Bureau of Development Services  
Planner  
David Besley

Date 5-2-16  
• This approval applies only to the reviews requested and is subject to all conditions of approval. Additional zoning requirements may apply.

CASE NO. 16-109683 AD  
EXHIBIT C-2



## INSTALLATION INSTRUCTIONS (For more specific and detailed instructions, please contact your Mutual Materials sales representative.)

### Materials Needed:

- Base Rock:** 3/4" minus crushed rock  
Residential (pedestrian) 4" thick  
Residential (vehicular) 6"-8" thick  
1 cubic yard = 300 sf @ 1" depth
- Bedding Sand:** Clean, washed (concrete) sand  
1"-1½" depth  
1 cubic yard = 300 sf @ 1" depth
- Joint Sand:** DesignMix Paver Joint Sand (80 lbs bag)

### Necessary Tools for Paver Installation

- ◆ Shovel (flat and pointed)
- ◆ Rake
- ◆ Wheelbarrow
- ◆ Stakes (for setting grade)
- ◆ String lines & line level
- ◆ Hammer
- ◆ Push broom
- ◆ 8' 2 x 4 (strike board)
- ◆ (2) Screed pipes (metal)
- ◆ Tape measure
- ◆ Trowel
- ◆ Garden hose w/spray nozzle
- ◆ Flat Head screwdriver

### Rental Items

- ◆ Plate compactor
- ◆ Masonry saw w/diamond blade

### Safety Gear

- ◆ Safety glasses
- ◆ Ear protection
- ◆ Dust mask (respirator)

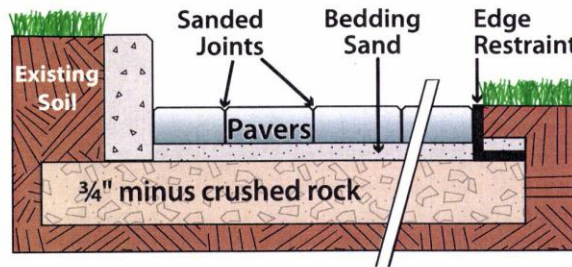
**1. Excavation:** Excavate to the design levels.

**2. Compaction:** Compact the subgrade to at least 98% of standard Proctor density as specified in ASTM D 698, unless under constant standard vehicle traffic—then use modified Proctor density as specified in ASTM D 1557.

**3. Base Preparation:** Place and compact a base of ¾" minus crushed rock in lifts of not more than 2" (50 mm) to a smooth uniform surface to the grade and cross section required. The minimum surface tolerance of the compacted base should be ± 3/8 in. (± 10 mm) over a 10 ft (3 m) straightedge.

The thickness of the base materials is determined by traffic, soil type, climate, drainage, and moisture. Pedestrian applications should have a minimum base thickness of 4 inches (100 mm) after compaction. Residential driveways should have a minimum base thickness of 6 inches (150 mm) after compaction. Minimum base thickness for residential streets are 8 to 10 inches (200-250 mm), however a qualified civil engineer should be consulted to determine appropriate design and thickness.

**4. Edge Restraint:** Install the edge restraint system to prevent settling and spreading. Follow specifications and manufacturers instructions for installing edge restraints. Consult ICPI Tech Spec #3 for more information.



**5. Bedding Sand:** Bedding sand under interlocking concrete pavers should meet ASTM C 33 or CSA A23.1 specifications. Bedding sand should be spread and screeded to a thickness of 1" to 1½" (25-40 mm). Use screed pipes and a straight and true strike board to level the bedding sand.

**6. Install Pavers:** Begin in one corner of the project and begin laying pavers in the desired pattern, moving outward in a triangular pattern. Chalk lines snapped on the bedding sand or string lines pulled across the pavers can be used to maintain straight joint lines. Cut pavers should be used to fill in gaps along the edges of the project. Be sure to mix pavers from multiple pallets to achieve a consistent color blend.

**7. Compaction:** After placing an area of pavers, compact them using a vibrating plate compactor capable of exerting 4,000 lbs. (1300-2200 kN) of centrifugal compaction force. Make at least two passes to insure that pavers have been seated in the compacted bedding sand.

**8. Joint Sand:** Sweep dry joint sand into the paver joints and compact the pavers again until the joints are full. At the end of each day, all pavers within 3 ft. of the laying face should be compacted. Install any remaining edge restraints.

*Technical Source: Interlocking Concrete Pavement Institute (ICPI): Tech Spec No. 2, 1999*

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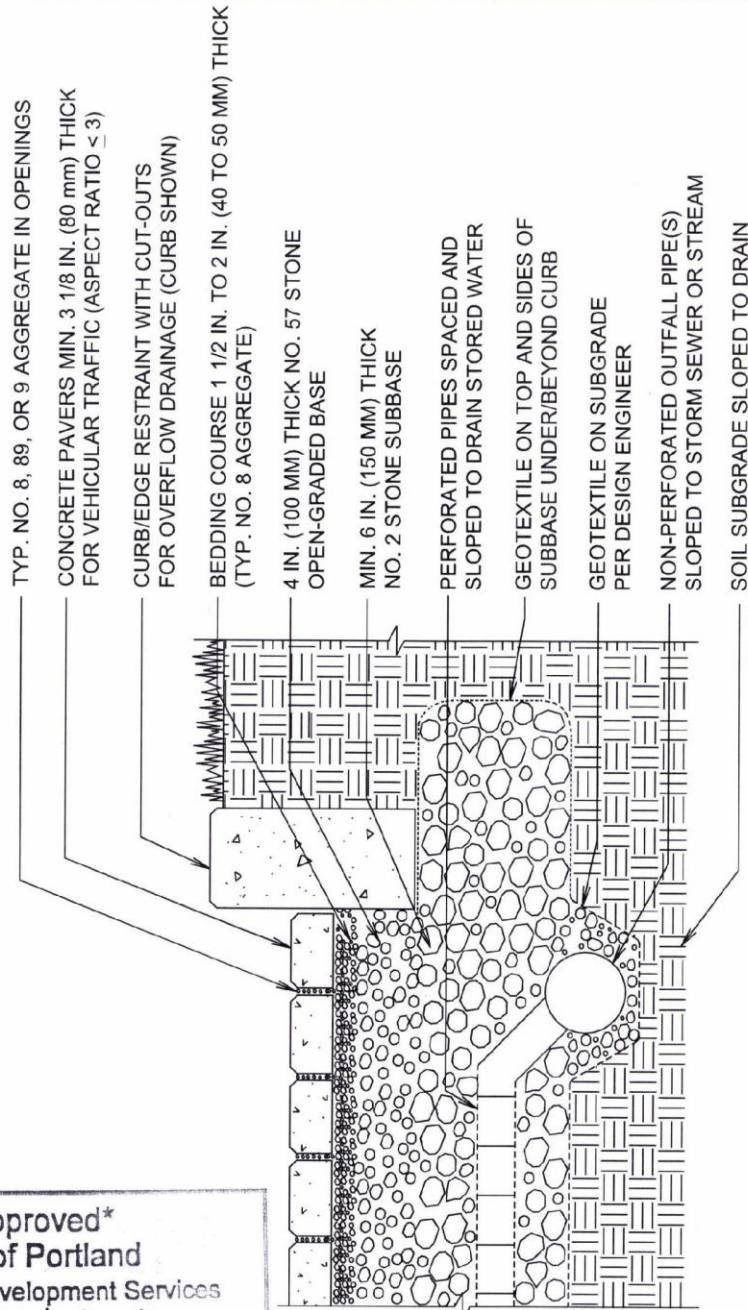


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**\*Approved\***  
**City of Portland**  
 Bureau of Development Services  
 Planner David Bedy  
 Date 5.2.16

\* This approval applies only to the reviews requested and is subject to all conditions of approval  
 Additional zoning requirements may apply.



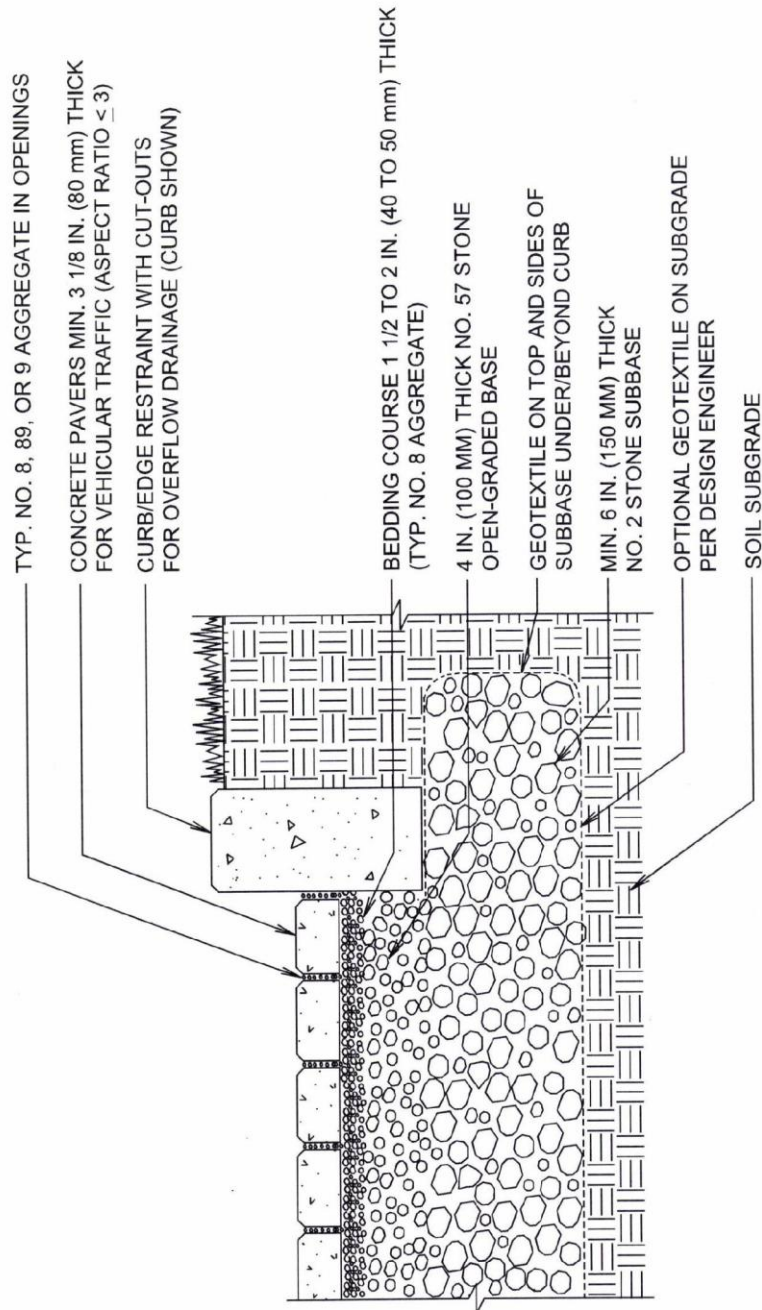
- NOTES:
1. 2 3/8 IN. (60 MM) THICK PAVERS MAY BE USED IN PEDESTRIAN AND RESIDENTIAL APPLICATIONS.
  2. NO. 2 STONE SUBBASE THICKNESS VARIES WITH DESIGN. CONSULT ICPI PERMEABLE INTERLOCKING CONCRETE PAVEMENT MANUAL.
  3. NO. 2 STONE MAY BE SUBSTITUTED WITH NO. 3 OR NO. 4 STONE.

	DRAWING NO.	ICPI-69
	SCALE	NO SCALE

**PERMEABLE PAVEMENT WITH PARTIAL  
 EXFILTRATION TO SOIL SUBGRADE**

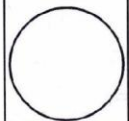
CASE NO. 16-109683 AD  
 EXHIBIT C-3





NOTES:

1. 2 3/8 IN. (60 MM) THICK PAVERS MAY BE USED IN PEDESTRIAN AND RESIDENTIAL APPLICATIONS.
2. NO. 2 STONE SUBBASE THICKNESS VARIES WITH DESIGN.  
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3. NO. 2 STONE MAY BE SUBSTITUTED WITH NO. 3 OR NO. 4 STONE.



PERMEABLE PAVEMENT WITH FULL  
EXFILTRATION TO SOIL SUBGRADE

DRAWING NO.

ICPI-68

SCALE

NO SCALE