Wilsonville City Hall
Development Review Board Panel B

Monday, October 23, 2017 - 6:30 P.M.

I. **Call To Order:**

II. **Chairman's Remarks:**

III. **Roll Call:**
Aaron Woods Richard Martens Shawn O'Neil Samuel Scull Samy Nada

IV. **Citizen's Input:**

V. **Consent Agenda:**

A. Approval of minutes of the July 24, 2017 meeting

Documents:

July 24 2017 Minutes.pdf

B. Approval of minutes of the August 28, 2017 meeting

Documents:

August 28 2017 Minutes.pdf

C. Approval of minutes of the September 25, 2017 meeting

Documents:

September 25 2017 Minutes.pdf

VI. **Public Hearing:**

A. Resolution No. 343
Site Modifications - 9600 SW Boeckman: Mac Martin, W-4 LLC - Applicant/Owner. The applicant is requesting approval of a Stage II Final Plan Revision, Site Design Review and Type C Tree Plan for a parking lot expansion, associated landscaping modifications and trash enclosure modifications. The subject property is located at 9600 SW Boeckman Road on Tax Lots 202, 282, and 292 of Section 14B, Township 3 South, Range 1 West, Willamette Meridian, City of Wilsonville, Clackamas County, Oregon. Staff: Kimberly Rybold

Case Files: DB17-0008 Stage II Final Plan Revision

DB17-0009 Site Design Review
DB17-0010 Type C Tree Plan

This item was remanded back to the Development Review Board by City Council at the October 2, 2017 City Council meeting in order to give the applicant an opportunity to present its case for approval to the DRB and to address any questions and concerns of the Board.

Documents:

Staff Report.Exhibits 10.23.2017.pdf
Exhibit B1 Applicant Materials.pdf
Exhibit B2 Drawings and Plans.pdf

B. Resolution No. 344

Republic Services: Temporary Storage Area for Drop Boxes. Ben Altman, Pioneer Design Group, LLC - Representative for Republic Services-WRI - Owner/Applicant. The applicant is requesting approval of a Three (3) Year Temporary Use Permit for a gravel-surfaced storage yard for drop boxes at the Republic Services property at 10295 SW Ridder Road. The site is located on Tax Lot 1400, Section 2C, Township 3 South, Range 1 West, Willamette Meridian, City of Wilsonville, Clackamas County, Oregon. Staff: Daniel Pauly

Case File: DB17-0026 3-Year Temporary Use Permit

Documents:

Republic TUP Staff Report.pdf
Exhibit B1.pdf

VII. **Board Member Communications:**

A. Recent City Council Action Minutes

Documents:

Recent City Council Action Minutes.pdf

VIII. **Staff Communications:**

IX. **Adjournment**

Assistive Listening Devices (ALD) are available for persons with impaired hearing and can be scheduled for this meeting. The City will also endeavor to provide the following services, without cost, if requested at least 48 hours prior to the meeting.

- Qualified sign language interpreters for persons with speech or hearing impairments.
- Qualified bilingual interpreters.
- To obtain such services, please call the Planning Assistant at 503 682-4960

DEVELOPMENT REVIEW BOARD MEETING

MONDAY, OCTOBER 23, 2017
6:30 PM

V. Consent Agenda:

A. Approval of minutes from the July 24, 2017 DRB Panel B meeting

Wilsonville City Hall
29799 SW Town Center Loop East
Wilsonville, Oregon

Development Review Board – Panel B
Minutes–July 24, 2017 7:30 PM

I. Call to Order

Chair Shawn O'Neil called the meeting to order at 7:35 p.m.

II. Chair's Remarks

The Conduct of Hearing and Statement of Public Notice were read into the record.

III. Roll Call

Present for roll call were: Shawn O'Neil, Richard Martens, Aaron Woods, and Samuel Scull. Samy Nada was absent.

Staff present: Daniel Pauly and Kimberly Rybold

IV. Citizens' Input This is an opportunity for visitors to address the Development Review Board on items not on the agenda. There were no comments.

VI. Consent Agenda: None

VII. Public Hearing:

A. Resolution No. 338. Annexation of 63rd Avenue Right-of-Way: West Linn-Wilsonville School District—Owner/Applicant. The applicant is requesting approval of an Annexation of 2,206 square feet of territory on the south side of Advance Road at SW 63rd Avenue. The subject property is specifically known as an eastern portion of Tax Lot 2100 of Section 18, Township 3 South, Range 1 East, Willamette Meridian, Clackamas County, Oregon. Staff: Kimberly Rybold

Case Files: DB17-0019 Annexation

The DRB action on the Annexation is a recommendation to the City Council.

Chair O'Neil called the public hearing to order at 7:38 p.m. and read the conduct of hearing format into the record. All Board members declared for the record that they had visited the site. No board member, however, declared a conflict of interest, bias, or conclusion from a site visit. No board member participation was challenged by any member of the audience.

Kim Rybold, Associate Planner, announced that the criteria applicable to the application were stated on page 2 of the Staff report, which was entered into the record. Copies of the report were made available to the side of the room.

Ms. Rybold presented the Staff report via PowerPoint with these key additional comments:

- The 2,206 sq ft of right-of-way being requested for annexation was along SW 63rd Ave at the Meridian Creek Middle School site, which was currently under construction. This particular right-of-way was dedicated to the school district to accommodate an additional turn lane needed in the area and to allow for construction of a sidewalk on that side of the road. The road would provide access to the Meridian Creek Middle School, as well as a future city park that would be located east of the road.

- This area was brought into the urban growth boundary (UBG) through a minor UGB amendment earlier this year. Upon completion of the project, the road would be dedicated to the City of Wilsonville.
- The proposed annexation met applicable state and regional rules and statues, including the petitioner for the annexation being the owner of the right-of-way dedicated for the roadway construction; the land was in the UGB; and was the minimum area needed to complete the multi-modal roadway improvements in the area.
- Staff recommended approval of the annexation request with no additional conditions.

Chair O'Neil called for the Applicant's testimony.

Tim Woodley, Director of Operations, West Linn-Wilsonville School District, **2755 SW Borland Rd, Tualatin,** stated he had read the entire Staff report. He and the school district had been involved on this particular project for many years. Through the design and permitting for the new school, it was discovered that the subject sliver of property was necessary, as noted in the Staff report. He concluded that the District fully supported and appreciated the DRB's actions.

Chair O'Neil noted there was no one was in the audience except for the applicant and their consultant, and closed the public hearing at 7:44 pm.

Chair O'Neil moved to approve Resolution No. 388 recommending approval to the City Council of an annexation of 2,206 square feet of territory on the south side of Advance Road at SW 63rd Avenue and adopting the July 17, 2017 Staff report with the attached findings included in Exhibit A1. Aaron Woods seconded the motion, which passed unanimously.

VIII. Board Member Communications

A. Results of the July 10, 2017 DRB Panel A meeting

Dan Pauly, Senior Planner, discussed the public hearing held for a park design in Villebois, noting some residents who recently moved in across from the proposed park had some concerns, primarily that the sales brochure did not show the future park across the street. Polygon was going to do some continued outreach to those neighbors and others. DRB Panel A would reconvene on September 11 to further consider the matter.

- He updated that the landscaping for the skate park was in and the bathroom was slowly coming together. No noise or traffic complaints had been received thus far, but there had been a few break-ins. The police were involved and the City had been responsive to neighbors as that issue came up.

B. Recent City Council Action Minutes

Barbara Jacobson, City Attorney, noted the DRB-Panel B's approval of the Subaru development had went smoothly and the Applicant seemed happy with the approval and conditions. Subsequently, however, the Applicant became dissatisfied with the amount of the Systems Development Charges (SDCs) imposed and appealed to have the majority of those refunded. In a preliminary motion, City Council agreed with Ms. Jacobson that the appeal was not timely and it was dismissed. The Applicant now had 60 days from that dismissal date to apply to Circuit Court for a writ of review. She briefly described the City's various SDCs and how they were assessed.

Chair O'Neil stated he had an issue with that because the Board had approved the application and there was pushback from citizens who had not bothered to show up to the hearing to voice concerns about issues, including traffic. Subaru had done an excellent job of communicating with the citizens. Now, they were going to go back on contributions related to traffic and everything else. It seemed like a bad PR move on Subaru's part.

Ms. Jacobson said she did not know why Subaru waited so long. Crunching the numbers to come up with the charges involved a long process, so there was ample time for an applicant to look at the numbers and question them or suggest alternatives if they believed the calculations were incorrect.

- She confirmed the SDC figures were generated on the front end of the project, but the numbers were not firm when DRB Panel B had reviewed the applications. The basic charges were addressed in the Staff report, but the traffic studies and everything else would have to be done to come up with the numbers. Although that did not happen until a few months after the DRB approval, it was certainly completed months in advance of when the building permits were issued.
- She reviewed the process for applicants wanting to challenge SDCs and described two examples involving Costco and Café Yumm, noting both processes occurred prior to the issuance of building permits.

Mr. Pauly added the Frog Pond Code and Master Plan had been adopted and Staff had already held a preapplication meeting for a development there. One of the DRBs would be reviewing some residential development subdivisions out in Frog Pond.

Ms. Jacobson noted it would be like starting Villebois all over again. She announced that Jon Gail, author of the Boones Ferry Messenger, had died suddenly over the weekend. He was very active in the community, and was a great, dedicated employee who always had a positive attitude and very excellent skills that he contributed to the City. He was the affordable housing guru and advocate, in addition to authoring the Boones Ferry Messenger.

IX. Staff Communications:

X. Adjournment

The meeting adjourned at 7:57 p.m.

Respectfully submitted,

Paula Pinyerd, ABC Transcription Services, Inc. for
Shelley White, Planning Administrative Assistant

DEVELOPMENT REVIEW BOARD MEETING

MONDAY, OCTOBER 23, 2017
6:30 PM

V. Consent Agenda:

B. Approval of minutes from the August 28, 2017 DRB Panel B meeting

Wilsonville City Hall
29799 SW Town Center Loop East
Wilsonville, Oregon

Development Review Board – Panel B
Minutes–August 28, 2017 6:30 PM

I. Call to Order

Chair Shawn O'Neil called the meeting to order at 6:30 p.m.

II. Chair's Remarks

The Conduct of Hearing and Statement of Public Notice were read into the record.

III. Roll Call

Present for roll call were: Shawn O'Neil, Richard Martens, Aaron Woods, and Samuel Scull.
Samy Nada arrived later.

Staff present: Daniel Pauly, Charles Tso, Mike Ward and Barbara Jacobson

IV. Citizens' Input This is an opportunity for visitors to address the Development Review Board on items not on the agenda. There were no comments.

V. Consent Agenda:

A. Approval of minutes of June 26, 2017 meeting

Aaron Woods moved to approve the June 26, 2017 DRB Panel B meeting minutes as presented. Shawn O'Neil seconded the motion, which passed 4 to 0.

VI. Public Hearing:

A. Resolution No. 339. Coca Cola Parking: TreCore Construction Management LLC – Applicant for Swire Coca Cola - Owner. The applicant is requesting approval of a Stage II Final Plan Revision, Site Design Review and Type C Tree Removal Plan for the addition of a parking area for approximately 23 passenger vehicle spaces at the southeast corner of Barber Street and Kinsman Road. The site is located on Tax Lot 103 of Section 14C, Township 3 South, Range 1 West, Willamette Meridian, City of Wilsonville, Clackamas County, Oregon. Staff: Daniel Pauly

Case Files:	DB17-0021	Stage II Final Plan Revision
	DB17-0022	Site Design Review
	DB17-0023	Type C Tree Removal Plan

Chair O'Neil called the public hearing to order at 6:34 p.m. and read the conduct of hearing format into the record. All members declared for the record that they had visited the site. No

board member, however, declared a conflict of interest, bias, or conclusion from a site visit. No board member participation was challenged by any member of the audience.

Daniel Pauly, Senior Planner, announced that the criteria applicable to the application were stated on page 2 of the Staff report, which was entered into the record. Copies of the report were available at the side of the room.

Mr. Pauly presented the Staff report via PowerPoint, briefly reviewing and noting the project's location and surrounding features with these key comments:

- He noted that the application was for the expansion of the parking area at the Coca Cola facility in Wilsonville.
- The proposed expansion was specifically located at an area near the intersection of Kinsman and Barber Roads
- The request was for 23 additional passenger vehicle parking spaces for employees
- DRB approval was required for parking changes involving more than 10 parking spaces
- Traffic: No PM Peak Impact was anticipated and the Community Development Director had granted a waiver to the traffic study requirement
- There was no maximum for parking for manufacturing establishments, and any addition to the current parking would not be a code issue
- The design of the parking lot would be pretty standard:
    - 24' wide drive aisles
    - Two-way traffic
    - Standard 9'x18' parking spaces
    - Required landscape island and surrounding landscape
- Landscaping:
    - A hedge would provide the low-screen standard, which was required
    - A rain garden would treat run-off from the new impervious area
    - Four trees were proposed to be removed, including 2 Douglas Fir and a couple of deciduous trees
    - Mitigation was proposed or required by condition of approval

Richard Martens asked if additional trees would be planted.

Mr. Pauly answered that additional trees were required to be planted.

Aaron Woods asked if charging stations for electric vehicles were planned.

Mr. Pauly said that the representative from Coca Cola could address that question. There had been no discussion on the matter.

Chair O'Neil asked if there were existing stations.

Mr. Pauly answered that there were not.

Michael Perelli Minetti, **Swire Coca Cola**, 9750 SW Barber Street, responded to the question regarding electric vehicle charging stations by saying that they had not looked at that provision. They did not currently have charging stations available at the campus. Part of the fleet was converting to hybrid, but those vehicles did not require electrical charging.

Mr. Woods asked if that would be something that Coca Cola would consider.

Mr. Perelli Minetti said that they would most definitely would consider it, especially as they saw the need for it increase.

Mr. Woods said that there were a number of people in the City who do drive electric vehicles.

Mr. Perelli Minetti said that he had seen them.

Chair O'Neil asked if any of the employees currently drove electric vehicles.

Mr. Perelli Minetti said he had not seen any pure-play electric only vehicles in the parking lot.

There were no further questions for the applicant.
There was no citizen testimony regarding the application.
The public hearing was closed at 6:41 p.m.

Richard Martens moved to approve Resolution No. 339 and accompanying staff report as presented. Aaron Woods seconded the motion. The motion passed 4-0.

Chair O'Neil read the rules of appeal into the record.

B. Resolution No. 340. Villebois Piazza Temporary Use Permit (TUP): Rudy Kadlub, Costa Pacific Communities – Applicant for RCS Villebois Development – Owner. The applicant is requesting approval of a Class 3 Temporary Use Permit for existing mailboxes, one coffee cart and potentially up to six food carts in the future. The subject site is located at the Villebois Piazza on Tax Lots 101, 102 and 2800 of Section 15AC, T3S, R1W, Clackamas County, Oregon. Staff: Charles Tso

Case File: DB17-0024 Class III Temporary Use Permit

Chair O'Neil called the public hearing to order at 6:43 p.m. and read the conduct of hearing format into the record. No members declared a conflict of interest, bias, or conclusion from a site visit. Chair O'Neil stated for the record that he was a member of the Villebois Facebook Community Page and had seen Facebook posts regarding the application, but declared that he had not formed an opinion on the application as a result of what he had seen. All members had familiarized themselves with the application and declared for the record that they had visited the site. No board member participation was challenged by any member of the audience.

Samy Nada joined the meeting in progress and declared that he did had any bias or conflicts that would impact his ability to fairly evaluate Resolution 340.

Charles Tso, Assistant Planner, announced that the criteria applicable to the application were stated on page 2 of the Staff report, which was entered into the record. Copies of the report were available at the side of the room.

Mr. Tso presented the Staff report via PowerPoint, briefly reviewing and noting the project's location and surrounding features with these key comments:

- This application was for a temporary use permit for 2 different uses:
    - Existing mailboxes that serve residents living in the area and
    - Food carts (up to 6 food/beverage carts) to be placed in the area adjacent to the Piazza
- The Piazza was located at the intersection of Villebois Drive and Barber Street. He showed the locations for the mailboxes, a coffee cart and the proposed location for future food carts.
- The temporary mailboxes were approved in 2008. That approval expired in 2014. This request would extend the mailboxes for two additional years.
- The temporary use permit would allow for up to six food/beverage carts in total to be placed across from the Piazza along Campanile Lane and Royal Scot Lane. Currently, one coffee cart was proposed to be located across from Royal Scot Lane and would be ready and open for business upon approval of the project.
- The Piazza was located within the Village Center as described in the Villebois Master Plan and was intended to be a mix of residential shopping and mixed-use buildings.
- The food carts would add retail food service destinations in the neighborhood, accessible by walking and bicycling to enhance the pedestrian-oriented neighborhood environment.
- The remainder of the Piazza would remain the same.
- Staff did not believe that traffic and parking would be significantly impacted by the presence of the mailboxes, the proposed coffee cart and future food carts. The additional food carts would bring food and coffee/beverage options closer to the residents in the neighborhood and would reduce the need for residents to have to drive out of the neighborhood to get food and beverages.

Chair O'Neil asked if the carts would be fixtures that would remain on site at the end of each day.

Mr. Tso answered yes.

Chair O'Neil asked if there were any other food carts like that in the City or if it was a first for the City.

Mr. Pauly answered that a temporary structure as a temporary use had been approved.

Chair O'Neil explained that he was focused on food carts.

Mr. Pauly said that there were no food carts like these for such a duration as this.

Chair O'Neil said that this would be the first time. There were temporary food carts, like Slick's Barbecue, but not something that would be there for a while.

Mr. Woods asked what governed food carts in a particular area. He believed that there was some governance from the State, but what about the City. Had the City developed any requirements for carts?

Mr. Pauly said that, as it pertained to health and health code, it was handled through the County.

Chair O'Neil clarified that issues of taxation and health were not considered before the Board. The only focus was the temporary use. He asked if the businesses would have to get Wilsonville business licenses.

Mr. Pauly answered that they would.

Chair O'Neil also clarified that they would have to operate a business lawfully just like anyone else.

Mr. Pauly confirmed that they would and said that they would also have to pay transit tax.

Mr. Woods asked if the Board was only looking at the request for an extension.

Mr. Pauly answered that these were interim uses planned for the future mixed-use building. The Master Plan called for a mailroom for all of Village Center to be in one mixed-use building. The mixed-use building did not exist yet, so all of the mailboxes were currently outside until the building was built and the mailroom was available. The same building would include retail space or something like a coffee shop as well. The hope was that in the next 24 months a mixed-use building would be built that could accommodate them permanently. It would be interesting to see how the traffic would respond to the food carts. A temporary use permit was also, by code, revocable. If there was a big issue, it could be revoked. He had never known of a temporary use permit to be revoked, but it was enabled in the code. It would give an idea of how the neighborhood would function with the additional amenities at the Piazza as had been envisioned.

Mr. Nada asked if the food carts would be visible from the street and if they were, were there guidelines in the code for colors and signage…

Mr. Pauly answered that signage was governed both by the code and temporary and permanent sign guidelines for Villebois itself. The color of the food cart would not be governed. As a temporary use, it would not have to go through architectural review.

Mr. Martens asked if there were restrictions as to the type of structure. Could someone drag a trailer or food cart or build something…

Mr. Pauly answered that it could be a variety of things. The homeowners association as well as the developer that was trying to attract new residents and business would be conscious of good design for their purposes.

Chair O'Neil asked if the site was unique enough that it (food carts) wouldn't be seen in other parts of Wilsonville. Would this be like opening a Pandora's Box where the Board would have to approve someone else at a different location down the road.

Mr. Pauly answered that it was clear in the record and in the staff report that the nature of the application was for interim use. The same use was expected to come to fruition on this site within the next couple of years. That was a unique circumstance.

Mr. Tso added that all future additional food carts under the permit would need to be reviewed by the Planning Department staff before they could be set up.

Samuel Scull asked if there was an area limitation for the food carts to move about or park within the Piazza.

Mr. Pauly replied that it would be reviewed again individually. Staff would not want them to interfere with the existing functions of the planned park. It would be off on the unused area of the Piazza, on the edge, where it wouldn't interfere with the function of the bocce ball court or anything else that existed. The current use of the Piazza park would continue uninhibited.

Mr. Scull asked if there would be controls in place for the hours of operation.

Mr. Pauly answered that there were no code criteria that would control that.

Chair O'Neil assumed that fire concerns were addressed and that the location of the carts….

Mr. Pauly answered that fire and building codes would still apply.

Mr. Martens asked if utilities were in place.

Mr. Pauly said that the applicant could speak to that question.

Mr. Nada asked about Mr. Pauly's earlier statement that temporary use permits could be revoked and how that was handled.

Mr. Pauly answered that if there was a specific criteria or condition of approval that was not being met that would a cause to revoke the permit.

Chair O'Neil asked who would revoke it. The DRB or the Planning Staff?

Mr. Pauly answered that he was not sure.

Chair O'Neil asked staff to look that information up. He confirmed there were no further questions for staff and called the applicant forward to give their presentation.

Rudy Kadlub, President of Costa Pacific Communities - master plan developer of Villebois – said that they had been in front of many Design Review Board groups over the last 14 years through the long, arduous process of developing what was one of the greatest communities in America. One of the last aspects of development would be the successful development of the commercial space surrounding the Piazza in the heart of the community.

- He gave a quick background of the Piazza and the Villebois Village Center. It had been approved years ago to accommodate up to about 30,000 square feet of retail commercial space in a series of up to five buildings surrounding the Piazza, with the intent that there would be active retail on the ground floor and a mix of uses such as office space or residential units above.
- The first building was built around 2007 in conjunction with what was now known as the Domain Apartments. They built the first mixed-use building on Villebois Drive, which included a fair amount of retail space of which nearly half of which was for leasing offices and as an amenity center. The balance of the space, approximately 5000 square feet, remained mostly vacant until about a year ago. Just in the last year they had seen retail and office demand start to match up with the supply – which was about 7,000 square feet of retail in that building.
- An additional 23,000 square feet was called for, according to the master plan. Several hundreds of homes were yet to be built. At build-out, there would be 6,000 to 7,000 people living in Villebois. One would think that would create a demand for a fair amount of neighborhood commercial. However, they had been actively marketing the space around the Piazza for a number of years, but it was difficult to find a retail/mixed use developer. The problem with building mixed-use was that when the second use was residential above commercial, the residential had to be built to commercial standards, which drove the cost of the residential up making it tougher to compete with non-mixed-use residential. Non-mixed-use residential housing could be sold or rented for less. The market demand was not quite there for mixed-use buildings.
- The City had brought in a highly regarded retail consultant, Robert Gibbs, about a year ago to measure demand for retail in Wilsonville. Mr. Gibbs looked at Town Center, but also gave his opinion about Villebois, the Village Center and the Piazza and made some recommendations:
    - Retail should be held to not more than 20,000 square feet, but 10,000 square feet would be better.

    - Another recommendation was to bring in temporary trailers, known as food carts in the Portland area, similar to Seaside, Florida and Seabrook in Washington which had seen a great deal of success. Those carts had generated additional traffic. More than one store or restaurant was needed to make a place a destination for retail. Retailers and restaurants were often gathered in one place. When five or more restaurants were in one place it became a destination. That tended to be the case for retail and dining throughout the country. It was a cardinal rule.
- Costa Pacific had not actively sought food carts. They had talked to one of the larger food cart operators about six or seven months ago, but nothing had come from the discussion. That operator continued to service various events in and around Wilsonville and the Portland area, but no agreement had been reached for a permitted food cart that would stay in place overnight.
- In visiting with Staff regarding a proposal from a Villebois resident who wanted permission to put up a coffee cart, it was determined that a temporary use permit was required. Coincidentally, the mailbox temporary use permit was expiring and it seemed appropriate to apply for both at the same time since they were both in the same location.
- The lot on the northeast side of Royal Scot Lane would eventually be a mixed-use building and the intent was that the mail center would be one of the tenants in that building. There would also be a public restroom. There was not enough demand to build that building yet, but that was the long-term plan.
- When the master plan was adopted, the U.S. Postal Service and the City agreed that all residents of the Village Center would get their mail in one location. Currently, residents got their mail from the temporary mailboxes, but eventually they would get it from the mailroom in the mixed-use building in a similar location.
- Residents had been asking for a coffee shop since they first broke ground in Villebois. It was the number one request from everyone. He was delighted when a Villebois resident came forward to offer that service for residents in Villebois. Ms. Recker had purchased a charming, architecturally pleasing cart and had found a location out of the public right-of-way, adjacent to the sidewalks and utilities. Utilities and water had always been planned for around the Piazza to support concerts, weddings, farmers markets and the like.
- They had not talked to and had no designs on any other carts at that time. They would be happy to meet a condition to come forward to the Board if they were to bring any other carts to the Piazza.
- They were hoping to generate additional traffic and enough activity to allow the users of the carts to become future brick-and-mortar tenants of the future buildings.
- As far as architecture was concerned, they were looking at selling land and developing buildings there, so they wished to maintain the high architectural standards as found in the architectural pattern book. They did not anticipate and would not allow anything that would detract from their activity there.

Chair O'Neil asked how many carts were possible in that location under the permit.

Mr. Kadlub answered that he thought they said six.

Mr. Tso confirmed that up to six were possible under the current proposal.

Chair O'Neil asked if there could be more (carts) or if six was the max.

Mr. Kadlub answered that under the current permit it would be six.

Chair O'Neil asked if there had been any communications or discussions with the local restaurants currently in Wilsonville to see if there was any interest in them having a cart in that location as opposed to having someone from outside come in.

Mr. Kadlub answered that he had not actively sought coffee carts. He had talked to other local restaurant owners about having a restaurant in Villebois in a brick and mortar building, but had not talked to anyone else about a temporary cart.

Mr. Woods asked about the traffic on Piazza Lane - was the thought to have primarily walking traffic or cars?

Mr. Kadlub said that Villebois as designed and envisioned was a pedestrian-friendly community and that they would never allow a drive-through amenity such as Starbucks as it did not fit the vision of Villebois. They would love to see everyone walking in Villebois and to the site. The Village Center was designed with the highest density surrounding the Piazza so the notion was that the greatest number of people living in Villebois would be within a quarter-mile walking distance of the Piazza. It was well connected and at the heart of Villebois. Every road and sidewalk led to that location.

Mr. Woods asked if that meant this was primarily for residents of Villebois and hopefully other Wilsonville residents as well.

Mr. Kadlub said that he would love to think that people outside of Wilsonville would pass up other coffee establishments to go to Kelly's coffee cart but that it was more likely that the primary customers would be living right there.

Mr. Martens asked for clarification on the design. Future carts would be under design control and standards that are already in place…?

Mr. Kadlub said that it would need to be approved by the architectural control committee. When it was turned over to the HOA, within 6 months or a year, the master association would have to manage the architectural control committee.

Mr. Nada asked if there would be a need for the mixed-use building within the next 3 years.

Mr. Kadlub said he wished that there would be a need, but he did not have a crystal ball. They kept talking to mixed-use developers and hoping that the demand would be there to create more supply. A fair amount of retail came in four or five years ago, but there were still vacancies in the Town Center. The Domain building rents were less than areas in the Town Center or in the Fred Meyer area but they were still vacant. He would like to think that as the balance of homes were built, it would create a tipping point to allow for more demand on the site.

Mr. Nada asked for clarification – if the mailbox permit expired in 2014 how was it monitored.

Mr. Pauly answered that, at the time, only one-year temporary use permits were allowed, even thru the DRB. Subsequent code changes had changed the language to allow for five-year temporary use permits. Now tracking was easier and it seemed like a good time to extend the temporary use permit for the mailboxes.

Mr. Scull asked if the future design had enough parking capacity integrated into it to accommodate the total retail/commercial space anticipated.

Mr. Kadlub answered that the future buildings would have their own parking and would have to meet the parking criteria laid out by the City. The buildings would be built, fronting on Royal Scot Lane, on Campanile Lane and on Barber Street and would have required parking, likely in the rear. The HOA transitional advisory committee was working with the City Engineer to come up with a parking plan for the Piazza. Currently, residents of the Domain typically parked on Villebois Drive and walked into the building and park there all night long, on both sides of Campanile and Royal Scot Lane. In the plan, no parking was intended to occur adjacent to the Piazza on those private streets. The streets were not posted as 'No Parking,' so people naturally did park there. There were bulb-outs and parallel parking outside of Royal Scot Lane and to the northwest of Campanile. Barber Street also had parking on both sides, as did Villebois Drive. It had always been contemplated that parking on Villebois Drive, Barber Street and the two private streets would be restricted to a limited parking time. Some areas might be 15 minutes, some might be an hour or two hours with no long-term parking. They were still in the process of developing and managing what the rules might look like.

He thanked staff for their help.

Chair O'Neil confirmed there were no further questions and called for public testimony in favor of, opposed, and neutral to the application.

Art Henderlong, 11386 SW Barber Street, testified that lived in Villebois for the past 11 years. For the past 6 years he served as president of the Seville Row Home owners association. He felt strongly that "Villebrew" coffee cart was a tremendous idea. In that neighborhood in the mornings, once could see dog walkers, walkers, joggers, and bicyclists. It could become a very nice morning activity center as a coffee shop. He felt he spoke for everyone when he said he was not for a proliferation of food carts. They did not want to become a destination. They

wanted to be a very unique community, which they were, and maintain that. They felt the "Villebrew" added to that. Food carts, in general, would be a completely different discussion. They were adamantly against proliferation of food carts, but were supportive of the coffee cart.

Robert Walliker, 29164 SW San Remo Court, testified that he had been a neighbor in Villebois for about 9 years. He opposed the planned food carts and did not want to open Pandora's Box by allowing a coffee cart but disallowing food. He was also concerned with the traffic pattern. It would be difficult when everyone was going to work to park in the morning, walk over to get coffee, and then walk back to the car. He felt that people would tend to try to drive through the area, which would cause issues for people dropping their children off at the Montessori school. Brick and mortar businesses such as the restaurant and taproom put a lot of money into obtaining permits, but this would allow anyone with a cart to wheel it in and start serving food and compete with the other business. That was not the reason he moved to Villebois.

Laurie Adams, 11404 SW Barber Street, testified that she was a proponent for "Villebrew." She was a new resident in Villebois but had had daily conversations with neighbors about the excitement of possibly having a local coffee cart and supporting a local business versus driving to Starbucks every day.

Daniel McConville, 11251 SW Barber Street, testified that he agreed with what Mr. Henderlong had to say. He loved the idea of "Villebrew" but was not excited for food carts.

Steve Hansen, 11398 SW Barber Street, stated that he had lived in the Seville Row Homes since 2010. He currently served as an officer on the HOA Board for the Seville Row Homes and also participated on the Transition Advisory Committee for the Villebois Village Master Association. He had been in direct communication with Kelly and numerous others concerning "Villebrew" and so forth. In response to Mr. Nada's and Mr. Martens concerns about design and colors, they had been under very strict control and monitoring of what was allowed. They would continue to do so. He was a strong proponent and supported the "Villebrew" coffee cart.

John Choppala, owner of Quench Taproom and future restaurant, 28900 SW Villebois Drive Suite 1002, said that his business opened in November 2016. He and his wife had conducted an exhaustive search all over Portland and landed on Villebois as a place to open their business because their vision was to have food and drink and community combined together. They were solo entrepreneurs and were not part of a chain. They were excited to be there. His concern was with the food carts. He had conversations with Kelly and was supportive of the coffee cart and other local businesses. He was concerned with how the application was all lumped together -the mailbox, the coffee cart and the food carts were lumped into one proposal and that was a concern. As a brick and mortar operator the concern was food carts would have a much different capital outlay than for a brick and mortar establishment. Their plans for a restaurant were in front of the plans examiner and they were moving with that plan. The addition of food carts would be a determent to the business. He was not afraid of competition but wanted an equal playing field.

Chair O'Neil asked how long Mr. Choppala had been at his current location/

Mr. Choppala answered that he had been there since November.

Chair O'Neil asked if he was made aware prior to signing the lease that there was a possibility of food carts being there.

Mr. Choppala answered that he had not. He was aware of the possibility of additional mixed-use buildings. He had tried to recruit another restaurant to join him in opening another restaurant that space. He reiterated that it was not a concern with competition but about having an equal playing field.

Kelley Recker testified that her address was on the testimony card. She identified herself as the owner of the coffee cart. She desired to provide good quality coffee and espresso to Villebois residents and guests. She was a resident and felt invested in Villebois. She had the idea to start a coffee shop about 15 years ago. She was a nurse, and explained that nursing and selling coffee did not mix, but it was a dream that she had. She happened to see a coffee cart for sale and really liked the way that it looked with a European feel. She bought it and renovated it by putting in new windows and a door along with having it painted. She had gone through the necessary process to make her dream a reality. She had contacted the County and looked at requirements for what she needed to have. It met the code and County requirements. She talked with contractors added electrical. It was a fully functioning coffee cart. She had done her due diligence to get to this point. She desired to provide coffee and espresso to the people in Villebois and for her coffee cart to be a place where people could meet.

Mr. Tso added that Kelly brought a visual sample of the architecture.

Mr. Pauly asked for a picture of it.

Chair O'Neil asked for the sample to be passed around.

Emily Stockman, 10991 SW Stockholm Drive, stated that she agreed with a few previous testimonies. She was not opposed the coffee cart but was opposed to the lumped permit of the food carts. As a resident, she felt like there was not much clarity and that the process was rushed. She spoke regarding the parking plan and said that as a resident, she had seen parking and traffic at all times of the day. There was an issue with parking. It was not as much of a walking community as she hoped it would be. It snowed, it rained, it was 100 degrees outside – people were not walking up the hill, they were driving there. She would love to have the parking re-examined in light of what the community was actually doing. As for utilities, she wanted to know where the garbage was to be dumped and if the food trucks would run generators all day. There were many open-ended questions and she wanted more clarity. Noise could be an issue and there was a need to have time and place of operation spelled out. Brick and mortar space was still available and she was curious why this came up. Again, it felt rushed and unclear.

Seth Dershewitz, 28900 SW Villebois Drive North, testified that he was concerned with parking and traffic in the area. He could not imagine people stopping or parking for coffee. He felt it needed to be re-evaluated. He was also concerned that there be a level playing field for all businesses. It needed to be something that Wilsonville would take pride in.

Chair O'Neil asked for the applicant's rebuttal or additional information.

Mr. Kadlub clarified that the ownership of the Domain mixed-use building was separate from the ownership of the rest of the proposed mixed-use buildings on the Piazza. The developer sold the property in 2006 and 2007 and were not party to the negotiation of leases with the existing tenants in the building.

The Transitional Advisory Committee, mentioned by Mr. Hansen, had been working with residents within Villebois Village Center to teach them how to operate the HOA. They were familiar with the proposal. Kelly had attended a meeting and the Transitional Advisory Committee fully supported her proposal.

Chair O'Neil observed that everyone seemed to love the coffee shop, but were concerned with the "what if" that came later. Was there a way to limit the temporary use permit to just the coffee shop?

Mr. Kadlub said that he had accepted the conditions of approval, one of which stated that he needed to come back to the City for any future carts.

Mr. Pauly clarified that it would be to staff. The question was if the applicant would be agreeable to limit it to just the mailbox and the coffee cart. Anything additional would need to come back to the Board. He had already started to make edits to the staff report should it go that way.

Chair O'Neil asked if the applicant would consider that.

Mr. Kadlub asked if the City would consider not charging him for another temporary use permit.

Ms. Jacobson answered no.

Mr. Nada mentioned that the issue of parking had been brought up and asked if there was enough space for a car or two cars to be parked in that area.

Mr. Kadlub replied that parking was typically available on the northwest side of Campanile Drive. The people parking overnight on Royal Scot Lane were residents of the Domain. They were working with the City Engineer to put together a proposal for a parking plan that would restrict parking on those streets, both for the location and the length of time between 8 a.m. and

6 p.m. They were hoping to open up more spaces with those restrictions. There was typically plenty of parking along Barber Street and along Campanile Lane.

Mr. Pauly added that additional streets would be opening soon.

Mr. Nada asked if it was possible to have one or two parking spots nearby with a 5-minute time limit so that a customer could stop in quickly to buy coffee.

Mr. Pauly answered that it would be difficult to do on a public street but there was more flexibility on the private portion. It sounded like the HOA was working through that.

Mr. Kadlub agreed and added that it was their intent to limit it. It would benefit the existing brick and mortar tenants as well. Along Villebois Drive there were no parking restrictions. If a customer wanted to grab a quick beer at Quench, they might have to park two to three blocks away because residents were taking up that space 24-7. They needed the City's approval to limit the time on public streets.

Mr. Martens asked for clarification about whether the HOA would just be for the commercial area.

Mr. Kadlub answered that the Villebois Village Center Master HOA governed the Central SAP, which included up to 1100 dwelling units.

Mr. Martens asked if it was for Villebois overall.

Mr. Kadlub explained that there was no one Master Association. The CC&Rs were all very similar, but there was a separate association for the South SAP, the Central SAP, the East SAP and for the North SAP.

Mr. Pauly agreed that there were many HOAs along with the Master Association. Staff had been watching CC&R's very carefully to make sure that everything worked appropriately. The residents in the village center were contributing to the Master Association, which owned the Piazza, Montague Park, mailboxes and other facilities.

Chair O'Neil shared that it was his second term on the DRB. He noticed that it seemed as if every time a Villebois item was on the agenda there were complaints about parking and habitability. He was concerned that some of the "quick fixes" overlooked the testimony of the residents who lived there.

Mr. Kadlub reflected back on the history of Villebois and said the alternative was to build a prison at that location. The City did not want that to happen there. There was a long process of selecting a developer and the City came up with DATLUP (Dammasch Area Transportation and Land Use Plan).

Chair O'Neil said he was very familiar with it. Some of the residents really wanted their cars…

Mr. Kadlub said the alternative was to create an urban village. Based on the State's land use laws, they planned to annex the area into the City and urban growth boundary with a minimum density requirement which Villebois had clearly met. It was a difficult balancing act. It would be great if so many of the residents would utilize their garages for the intent that they were meant, but so many people had so much stuff that cars ended up being parked on the street. That created a problem.

Mr. Martens asked if the apartment building had dedicated parking.

Mr. Kadlub answered that it did. There was plenty of parking off-site.

Chair O'Neil asked if there were further questions for the applicant. There were none.

Mr. Pauly clarified that the Board could put a condition that the applicant come back to the DRB for the additional food carts.

Ms. Jacobson read code section 4.163: *"The Development Review Board after hearing as set forth in Section… may permit the temporary use of structure or premises in any zone for purpose that does not conform to the regulations prescribed elsewhere in the Code for the zone in which it is located, provided that such use be of a temporary nature and does not involve the erection of a substantial structure. A permit for such use may be granted in the form of a temporary and revocable permit* (revocable by the Board), *up to a five (5) year period, subject to a showing of good cause and such conditions as will safeguard the public health, safety, convenience and general welfare." Those were the conditions to think about as the Board considered the application.*

Mr. Nada asked if that meant that if it was causing a traffic problem, could permit just be revoked?

Ms. Jacobson said that if the Board was not satisfied that the parking was sufficient, they could turn down all of it, part of it or approve it and wait to see how it worked out. If there were a lot of complaints, the Board could call it back up.

Mr. Nada clarified that he meant the process for revoking…

Ms. Jacobson said that the code did not specifically talk about parking, but about "safeguarding the public health, safety, convenience and general welfare." They could make it a condition that they wanted to see more in parking.

Chair O'Neil asked Ms. Jacobson how it would make it back in front of the DRB if there were problems that developed.

Ms. Jacobson said that the code was not clear. She expected that if there were a lot of complaints about it, Staff could put it on the agenda.

Mr. Pauly said there were a number of places in the code that referred to situations where complaints would end up on the agenda. It did not usually happen, but the processes were in place for Staff to refer something or put something on the agenda besides a development application.

Chair O'Neil asked if there was a need for further information from Staff, the City Attorney or the applicant. There was none.

He asked for a show of hands from the audience – how many were residents of Villebois? How many of those wanted a coffee shop? How many were concerned about anything else beyond a coffee shop or other carts coming in? He summarized that it appeared that most people wanted the coffee shop and that there was more concern about the expansion of other carts in the area.

Mr. Hansen mentioned, as before, that he lived in the Seville Row Homes. He served on the Transportation Advisory Committee to the Master Association, which controlled the Piazza, Montague Park, the mailboxes and so forth, and said that as a member of the TAC committee he was vehemently opposed to expanding the other food carts but strongly supported the coffee cart.

Chair O'Neil closed the public hearing at 7:58 pm.

Mr. Pauly asked to add the following exhibits into the record:

- D1. Email Comments from Angela Webber
- D2. Email Comments from Brett Lubay
- D3. Photo of Coffee Cart from Kelley Recker

Ms. Jacobson said that the Board could make a motion to approve the resolution as written or propose an alternative motion. After there was a motion and a second, then there would be discussion.

Mr. Martens motioned to approve Resolution No. 340, adopting the staff report dated August 28, 2017 as presented.

Mr. Woods seconded the motion.

Chair O'Neil asked if there was need for further discussion.

Mr. Scull asked if Mr. Martens was proposing the motion in full.

Chair O'Neil said that the motion was as drafted. It was motioned and seconded to approve Resolution No. 340, adopting the staff report dated August 28, 2017 without changes, which incorporated exhibits A1, D1, D2 and D3.

Mr. Martens proposed to amend the motion to limit the approval to the coffee cart

Chair O'Neil thought that they needed to vote on the existing motion.

Ms. Jacobson said that there could be discussion. The motion was on the table, but it be could be withdrawn and amended in a new motion.

Chair O'Neil suggested Mr. Martens withdraw the motion.

Mr. Martens agreed to withdraw his original motion.

Richard Martens moved to approve Resolution No. 340 and accompanying staff report as amended to indicate that the approval is for the mailboxes and coffee cart only, and the addition of Exhibits D1, D2 and D3. Samy Nada seconded the motion.

Chair O'Neil expressed his hope that any concerns raised about parking or other things on the site would come before the DRB. The proposed motion resolved the problem and addressed the concerns of the citizens of Villebois and the City of Wilsonville. He appreciated the motion.

The motion passed 5-0.

Chair O'Neil read the rules of appeal into the record.

C. **Resolution No. 341. Marion's Carpet Warehouse: Bob Schatz, Allusa Architecture – Applicant for Bergaso Properties – Owner.** The applicant is requesting approval of a Stage I Preliminary Plan, Stage II Final Plan, Setback Waiver, Site Design Review, Class 3 Sign Permit and Type C Tree Plan for construction of a tilt-up slab warehouse with retail space on SW Boones Ferry Road. The subject property is located on Tax Lot 1300 of Section 14A, T3S, R1W, Clackamas County, Oregon. Staff: Daniel Pauly for Kimberly Rybold

Case Files:	DB17-0001	Stage I Preliminary Plan
	DB17-0002	Stage II Final Plan Revision
	DB17-0003	Setback Waiver
	DB17-0004	Site Design Review
	DB17-0005	Class 3 Sign Permit
	DB17-0006	Type C Tree Removal Plan

Chair O'Neil called the public hearing to order at 8:08 p.m. and read the conduct of hearing format into the record. All members declared for the record that they had visited the site. No

board member, however, declared a conflict of interest, bias, or conclusion from a site visit. No board member participation was challenged by any member of the audience.

Daniel Pauly, Senior Planner, stated that he was presenting on behalf of Kimberly Rybold, Associate Planner, who was unable to attend. He announced that the criteria applicable to the application were stated on page 2 of the Staff report, which was entered into the record. Copies of the report were available on the counter at the side of the room.

Mr. Pauly presented the Staff report via PowerPoint, briefly reviewing and noting the project's location and surrounding features with these key comments:

- The subject property, known as the "Red Barn" property by most in Wilsonville, was located just north of Barber Street facing I-5 along Boones Ferry Road. The rear of the property was currently open, with a few scattered smaller trees. The front of the property contained the barn and a mature tree grove on the northeast quadrant. The property was part of the same property as the Guardlock Fueling Station to the south up until February 2017. It was now surrounded by development on three sides. It was a relatively small parcel for development – smaller property than typically reviewed, particularly in the Planned Development Industrial Zone.
- The property was already zoned Planned Development Industrial. The request was for a Stage I Preliminary Plan Revision, a Stage II Final Plan Revision, a Setback Waiver, Site Design Review, a Class 3 Sign Permit and a Tree Plan.
- The proposal was for a 27,366 square foot tilt-up slab warehouse with 3,500 square feet of retail space. Prior to the partition plat in February 2017, the land was designated for industrial use.
- Key standards from the Planned Development Industrial Zone:
    - Retail was limited –5,000 square feet maximum was allowed per building. The proposal was for 3,500 square feet.
    - 30-foot front, rear and side yard setbacks were required. This parcel was small, so a setback waiver was requested.
    - Performance standards applied, particularly as pertained to outdoor storage. There was no room to store anything outside on this property. The proposal showed everything to be fully enclosed.
- Setback waiver: a 30-foot setback would not leave room to develop on the small parcel. In order to allow a building with a large enough footprint to be functional, a 10-foot setback was requested. Beyond the building wall, the emergency stair access was less than the 10-feet requested. It would be closer – more like 4-feet – but was only for the stair landings for emergency ingress and egress.
- Traffic: The number of PM peak trips added through the interchanges was expected to be seven (7), which was a relatively small amount with little impact. There were no criteria pointing to a denial or needed off-site improvements related to intersection or added congestion.
- Parking: The minimum required was 22 spaces. The maximum was 34 spaces. The proposal was for 22 spaces. It was functional and adequate to serve the applicant's needs.

- Site Circulation: Delivery trucks would bring carpet into the warehouse. Box vans and small trucks would be present. No issues were identified.
- Pedestrian Access: A sidewalk would be in front of the site, with direct access from the sidewalk across the single-loaded parking area to the front door, as well as a walkway across the front of the building.
- Utilities were available, or would be available. There were no issues.
- Building Design: Staff had worked carefully with the applicant and had discussed how to reflect the Planned Development Industrial Zone in spite of the commercial component. It was a tilt-up concrete building with black metal canopies and some variation with the parapet on the top. Other parts of the building had a brick base or a painted base. There was a noticeable bottom, middle and top. The design was compatible with the zone.
- Colors: (*The color board was passed around*). Historically speaking there was concern about bright colors along I-5. Les Schwab, for instance, originally proposed a bright red, but ended up with a more muted earth-tone red on the building and the roof. Staff had reviewed the colors for this proposal and did not have a way to say that they were too bright. The board should look closely at the proposed colors as the code language was clear that the Board had leeway in terms of requiring or denying certain colors. Staff did not have additional comment or strong feelings one way or the other in terms of color that could be based on any clear criteria in the code.
- Outdoor Lighting: As presented it appeared that it met the Outdoor Lighting Standard. The details of the lighting often came later on in the process as more detailed construction design happened. Fortunately, the lighting code allowed for an administrative review to double check the final design of the lighting to ensure that it met the prescriptive option in terms of wattage and placement. Staff would be sure review that as they reviewed the building permits, but there were currently no concerns with outdoor lighting.
- Landscaping: Staff had worked carefully with the applicant on the professionally designed landscaping. Street trees and parking lot trees were provided as required. They were sensitive to the 10-foot setback and ensuring that anything planted within the setback would be of a columnar variety that would not get too wide or too far over into the neighboring property or interfere with the building. The plants were expected to be relatively successful in that narrow area.
- Building signs: There was only one façade, on the side facing Boones Ferry Road, eligible for signs. Based on the length of 171-feet, 96 square feet of signage was allowed. The proposal was for a total sign area of 93.43 square feet. That included the name and listing of different products being offered. In addition, a freestanding sign was proposed. The maximum allowed height was 20 feet, which was proposed. The allowed sign area was 64 square feet with 55 square feet proposed. It was a standard streamlined design for that particular sign.
- Tree Removal: It was a noticeable grove of trees but, with the relatively small site, it would be difficult to build anything without impacting the grove. Staff had looked at it - the grove extended into the middle of the site. It was not protected by the SROZ so it became a balancing act with all of the design considerations. In the end, being able to fit

a usable building of any type, along with required parking, led to a majority of the trees needing to be removed. Staff had identified some trees along the edges for initial protection. The arborist would closely monitor those trees during construction, but as construction progressed and impacts of working near the trees in the parking lot became clear, some of those trees may also need to be removed. The trees formed a grove, and with trees in the center being removed for the building, other trees that had been protected might create an additional hazard. It could create a domino effect. Staff was initially surprised at the number of trees proposed for removal, but had reviewed the arborist report and site design options and it seemed unavoidable if the site was to be developed.

Mr. Woods referenced page 7 of 78 in the staff report. In the second paragraph, it stated that the arborist had identified 45 trees impacted by the proposal. The applicant proposed removing 44 trees. Was there something special about the one tree that was left?

Mr. Pauly answered that the tree was far enough to the side that it could be preserved. There were three additional trees with good potential that staff was recommending be closely monitored for preservation.

Chair O'Neil asked how old the oldest tree was.

Mr. Pauly answered that, according to the arborist report, the biggest tree was 42 inches in diameter. For a Douglas Fir, it was a nice tree but not ancient. It was in good condition, but was located in the middle of the building.

Mr. Scull asked if reduced setback and the aggressive landscape plan allowed for adequate sidewalk or egress in case of emergency.

Mr. Pauly answered that it was a concern. It did provide a path that accessed all of the egresses. The plantings were either small shrubs or trees were columnar and would grow tall enough to be limbed up. It would take some maintenance, but the plants could be limbed up or pruned back to keep the path clear.

Mr. Scull asked if 22 parking spaces were enough for 10 employees and customers use.

Mr. Pauly answered that there was no alternative parking. Barber Street or Boberg Street might have the closest on-street parking.

Mr. Nada asked if the 22 parking spaces included delivery trucks.

Mr. Pauly answered that those were for passenger vehicle parking only. There were two parallel employee parking spaces in the delivery area, but the 22 were for passenger vehicles. The code requirement was for 22 parking spaces plus a delivery berth.

Chair O'Neil asked if any electrical stations were planned.

Mr. Pauly said that none were proposed in the materials provided.

Chair O'Neil asked if cameras would installed at the Wilsonville/Boones Ferry intersection.

Ms. Jacobson agreed that it was an intersection that backed up at rush hour. There were improvements, besides red light cameras, being planned for that intersection. The red light cameras were still being studied and there was no definite plan to have them. There was support from City Council to have them, but staff was still working to get proposals from different companies to see what the cost would be.

Chair O'Neil asked staff to go back to the City Council and City Administrator and encourage them to look carefully at the cameras. His wife and son had been rear-ended badly at that intersection and red light cameras may have helped avoid that. He encouraged action.

Mike Ward, Civil Engineer for City of Wilsonville, said that staff recognized that intersection as a difficult one. Ramp metering on southbound I-5 made it more difficult, as more vehicles wanted to get on I-5 than the ramp meters permitted during the PM peak hour. Vehicles backed up through the Boones Ferry intersection after the ramp meters came on. Various alternatives were being looked at:

- The left turn lanes had been lengthened on southbound Boones Ferry Road at Wilsonville Road and were restriped to give more stacking space.
- Staff was looking at changes to the Fred Meyer outlet to allow vehicles to turn right out of there.
- There were designs for a 5th at Kinsman connection to allow vehicles to go south on Boones Ferry down to 5th Street and over to Kinsman to get to Fred Meyer or away from Fred Meyer towards the west by bypassing that intersection.
- Council was looking at red light cameras.
- Some enforcement had been done and would continue.

Part of the problem was that people pulled into the intersection while the light was green, not realizing that they could not get all the way through before it turned red. There were a multitude of problems. This project specifically, should not exacerbate those problems. Staff encouraged everyone to write their state representatives to get money to ODOT to fix the bridge.

Bob Schatz, owner of Allusa Architecture - 2118 SE Division Street, Portland - said that he was the architect for Marion's Carpet for 25 years. Marion's was Portland-based, family based company with one location in southeast Portland. This would be their first satellite location. The bookkeeping would be handled by the Portland office and sales would happen in Wilsonville. The owners were excited to be in Wilsonville.

He spoke to the parking concerns:

- Photographs as well as interior security footage of the showroom on weekends and weekdays had been submitted to staff to show how many people would be shopping at the store.
- There were typically 3 to 5 employees on site.
- On an average day there were between 1 to 3 customers in the showroom.
- People often visited the showroom to look at samples and decide what they liked and how much they would need. Then they would talk to the salesperson and leave. Sometime in the future a contractor would show up, pick up the carpet and take it to the customer's house to install it. Nobody walked away with something they purchased that day.
- Because it was a larger item and there was a lot of walking around in the showroom, there were discussions about whether it would be called a large bulky product versus a regular retail product. Large bulky products did allow fewer parking spots because of the nature of the product being sold.
- There should be more than adequate parking for the Wilsonville location. There were about the same number of parking spots as at the current location. The parking lot was maximum one-third full.

Regarding trees:

- With a smaller parking lot, a few trees could be saved but with a bigger parking lot, the trees were too close to the asphalt and the sidewalk.
- They would like to save as many as possible. During construction they would determine if it would be possible.
- The current plan was not to save any trees but he wanted to save as many as possible.

He noted that he heard comments about electric cars that evening. He and his wife both owned one car that drove 75 miles. He planned to buy a second car that would go 300 miles. They had owned their car for three years and always charged it at home. They had never found a need to charge it at a public site.

Chair O'Neil asked if there were questions for the applicant.

Mr. Nada asked how many other warehouses were owned by the owner.

Mr. Schatz answered that there were two: at the southeast Portland location, there were two buildings across the street from each other.

Mr. Nada asked how big they were.

Mr. Schatz answered that the main warehouse was 20,000 square feet. The building across the street was another 20,000 square feet.

Mr. Nada asked how many truck trips there were per day or per week.

Mr. Schatz answered that he did not have the number for semi-trucks. A truck would drop off a trailer, and then over time staff would empty it.

Mr. Nada clarified that he wanted to determine the frequency.

Mr. Schatz said that most traffic was in the morning when contractors showed up to pick up carpet for installation. It was quiet by 9 A.M.

Chair O'Neil thanked the applicant and asked if there were any further questions for staff or the applicant or testimony from the audience.

There were no further questions for the applicant.
There was no citizen testimony regarding the application.
He declared the public hearing closed at 8:42 P.M.

Mr. Woods motioned to accept Resolution No. 341 as presented by staff.

Chair O'Neil clarified that it meant adopting the staff report dated August 17, 2017, including exhibit A1.

Mr. Woods confirmed.

Mr. Scull seconded the motion.

Chair O'Neil asked for further discussion or questions. Seeing none, he commented to City staff that he felt like a broken record and was getting frustrated with staff pushing it down the road when it came to blaming traffic on the traffic lights and ODOT. He worked at the state and understood ODOT bureaucracy and the funding issues. Building continued. He really wanted to see business thrive in Wilsonville but wanted the safety of the residents and the employees to be taken care of. When people got hurt it concerned him. He encouraged staff to take it back. That was his personal opinion as a citizen.

The motion passed 5-0.

Chair O'Neil read the rules of appeal into the record.

VII. Board Member Communications:

A. Recent City Council Action Minutes

There were no comments.

VIII. Staff Communications: There were none

IX. Adjournment

The meeting adjourned at 8:46 p.m.

Respectfully submitted,

Shelley White, Planning Administrative Assistant

DEVELOPMENT REVIEW BOARD MEETING

MONDAY, OCTOBER 23, 2017
6:30 PM

V. Consent Agenda:

C. Approval of minutes from the September 25, 2017 DRB Panel B meeting

Wilsonville City Hall
29799 SW Town Center Loop East
Wilsonville, Oregon

Development Review Board – Panel B
Minutes–September 25, 2017 6:30 PM

I. Call to Order
Chair Shawn O'Neil called the meeting to order at 6:31 p.m.

II. Chair's Remarks
The Conduct of Hearing and Statement of Public Notice were read into the record.

III. Roll Call
Present for roll call were: Shawn O'Neil, Samy Nada, and Samuel Scull. Richard Martens and Aaron Woods were absent.

Staff present: Daniel Pauly, Barbara Jacobson, Steve Adams, and Kimberly Rybold

IV. Citizens' Input This is an opportunity for visitors to address the Development Review Board on items not on the agenda. There were no comments.

V. Consent Agenda:
A. Approval of minutes of July 24, 2017 meeting

Approval of the July 24, 2017 DRB Panel B meeting minutes were postponed due to the lack of a voting quorum.

VI. Public Hearing:
A. **Resolution No. 343. Site Modifications - 9600 SW Boeckman: Mac Martin, W-4 LLC – Applicant/Owner.** The applicant is requesting approval of a Stage II Final Plan Revision, Site Design Review and Type C Tree Plan for a parking lot expansion, associated landscaping modifications and trash enclosure modifications. The subject property is located at 9600 SW Boeckman Road on Tax Lots 202, 282, and 292 of Section 14B, Township 3 South, Range 1 West, Willamette Meridian, City of Wilsonville, Clackamas County, Oregon. Staff: Kimberly Rybold

Case Files:	DB17-0008	Stage II Final Plan Revision
	DB17-0009	Site Design Review
	DB17-0010	Type C Tree Plan

Chair O'Neil called the public hearing to order at 6:35 p.m. and read the conduct of hearing format into the record. All Board members declared for the record that they had visited the site. No board member, however, declared a conflict of interest, bias, or conclusion from a site visit. No board member participation was challenged by any member of the audience.

Kimberly Rybold, Associate Planner, announced that the criteria applicable to the application were stated on Page 2 of the Staff Report, which was entered into the record. Copies of the report were made available to the side of the room.

Ms. Rybold presented the Staff report via PowerPoint, briefly reviewing the site's location and condition, as well as the requested applications, with these key additional comments:

- She confirmed the Applicant was not yet present, but had been notified about tonight's hearing via email. The Applicant had stated a week ago, when the Staff report was published, that they would attend tonight's meeting.
- The site was approximately 24.5 acres in size and currently zoned Planned Development Industrial (PDI) and had a Comprehensive Plan Map Designation of industrial use. The site had a significant number of trees and some Significant Resource Overlay Zone (SROZ) on its western portion. Currently, the existing manufacturing building of approximately 170,000 sq ft on the eastern portion of the site was undergoing renovations.
- The applications were requested to support the construction of additional parking and associated landscaping and lighting for the site, as well as modifications to trash enclosures and a new building entry ramp. Major components of tonight's review were the addition of 246 parking spaces and the associated landscaping improvements for the parking area.
    - DRB review was required because the modification involved the addition of more than ten parking spaces. Within the past year, other administrative approvals for the site had been granted for revised windows, cornices, and building colors, along with a new building entryway.
- Parking and Site Circulation. Required parking for the site was based on ratios for manufacturing and office uses. Presently, there were 156 parking spaces on site. The application proposed a total of 402 parking spaces, which met the Development Code standards as no parking maximum was listed for manufacturing uses. Most of the additional parking would be located along the Boeckman Rd frontage closest to the new building entryway at the northwest corner of the building. Other portions of existing asphalt would be restriped, which was how the site would achieve 402 spaces.
    - In addition to providing the required ADA parking, 20 carpool and vanpool spaces were proposed near the building's front entry, as well as nine electrical charging stations.
    - Pedestrian connections would be provided throughout the parking lot and also from the sidewalk along Boeckman Rd to the building entryway.
    - The trash enclosures would be located in two different places, one on the south end and one on the east side of the property. A new entry ramp would be installed on the building's east elevation, which was adjacent to one of the proposed trash enclosures. The area for the trash enclosures, along with an additional trash container that would be located on the east side of the building, exceeded Code standards for mixed solid waste and recyclable storage and would be appropriately screened.
- Landscaping. A variety of trees and shrubs was proposed to meet screening and parking lot landscaping requirements. A mix of trees and evergreen shrubs was proposed to form a continuous screen along the Boeckman Rd frontage to screen the parking, while shrubs and trees that met the high screen standard would screen the proposed trash storage and container area on the east side of the building.

    - In most of the planting areas, the Applicant proposed a choice of plant options that might be used at the time of installation to provide flexibility. After reviewing the proposed plant materials, Staff did not support using Marshall Seedless Ash trees due to the potential vulnerability in the future to the emerald ash borer. Staff added a condition of approval to address that concern and asked the Applicant to utilize the other tree option.
- Outdoor Lighting. The Applicant proposed using the prescriptive option, and the proposed lighting generally met Code requirements for wattage and lighting levels. The SROZ on the southwestern portion of the property required either greater setback distances for luminares in that area along the driveway or the utilization of a house-side shield. A condition of approval was added to ensure those requirements were met at the time of building permit review.
- Traffic. Although the reuse of a building that maintained the same type of use did not require a traffic study, the City worked with the Applicant to perform one as the previous traffic analysis for the site was more than 25 years old. It was important to note that although that information was not being used as a criterion for approval or as justification to deny the request, the City wanted to get more current information about the traffic expected to be generated for this use on the site. The information would help anticipate future transportation needs in the area and provide inputs for other future transportation studies that might be undertaken.
    - The traffic study evaluated both the current use of the building, as well as the potential later phase of development that would have 70,000 additional sq ft of high tech manufacturing uses, as well as a 4,000 sq ft sit-down restaurant. In both the current and future development phase, the studied intersections met the City's level of service (LOS) D, PM peak operating standard, as well as ODOT operating standards for the highway segments involved. She noted that to get to the second phase of development, DRB action would be required to implement those uses.
    - She confirmed the southbound I-5 onramps were shown to be at close to capacity in all the scenarios that were tested.
- Type C Tree Removal. The arborist's report for the proposed project noted four larger tree stands on the site, which were not proposed to be affected by the parking lot or any of the site modifications, as well as an inventory of 71 individual trees. Of the 71 trees, seven were proposed for removal, either due to poor health in general or to accommodate some of the construction activities. Six of the trees were in Fair or Poor condition, and only one was shown to be in Good condition. A number of trees were proposed as part of the Landscaping Plan to mitigate the loss of the seven trees, and the varieties and species of those trees was noted in the Plan.
- Staff recommended approval of the Stage 2 modifications, site design review, and Type C Tree Removal Plan applications with the conditions noted in the Staff report.

Samy Nada asked about Exhibit B2 DB17-0008 et. al., as he was confused by the dates and whether or not DWFritz would have access.

Ms. Rybold clarified the Applicant's authorized representative stated that the 2017 date was a typo and should be 2018. Because the chapel was a temporary user of the site only on weekends, the parking was calculated only on the base use of the office and manufacturing.

Samuel Scull understood the future usage of an additional 70,000 sq ft and a potential 4,000 sq ft restaurant would be additional structures.

Ms. Rybold confirmed that was correct. The additional separate structures would be located on the western portion of the site where there was no SROZ. Parking for the restaurant was not assumed in the current amount of parking. She asked if Mr. Adams knew if the Applicant intended to share any of the parking in the future.

Steve Adams, Development Engineering Manager, replied that the Applicant had never mentioned anything about parking sharing on site. There had been initial pushback about doing a traffic study because there was an existing use building. When Staff allowed the Applicant to tie the current study to potentially adding a 70,000 sq ft warehouse and 4,000 sq ft restaurant, Community Development Director Nancy Kraushaar agreed that the traffic study would be good for a period of five years, so if the Applicant wanted to build either structure within the next five years, including the restaurant, the current traffic study would apply. When one of the two structures was built that would be the time to question the Applicant about how they planned to accommodate parking.

Chair O'Neil called for the Applicant's presentation and noted that at 6:51 pm, the Applicant was not in attendance. Mr. Pauly had mentioned that he did not think the Applicant was required under Code to be present. He disagreed with the adjudication process of that, but was open to guidance from the city attorney.

Barbara Jacobson, City Attorney, stated that ideally the Applicant should be present to state that they agree with the conditions of approval. Since the Applicant was not present, if the Board was satisfied with the testimony presented by Staff, they could vote to approve it. The Applicant would then have the normal period to appeal. If the Board had questions that had to be answered by the Applicant, the hearing could be continued to a future date on which the Applicant could appear and answer questions.

Chair O'Neil stated that it had been established that the Applicant had notice of tonight's hearing, adding the Board could decide to make a decision without their testimony.

Ms. Jacobson confirmed the Board could make a decision without the Applicant's testimony or take a five-minute recess while Staff attempted to call the Applicant.

Chair O'Neil said he would call for a recess so Staff could attempt to contact the Applicant. He added that he was inclined to move in a way that might not be too helpful based on an Applicant not being present, but he was open to a phone conference with the Applicant.

Chair O'Neil called for a brief recess at 6:53 pm and reconvened the meeting at 6:58 pm.

Ms. Rybold stated she was able to reach the Applicant, who told her the Board could call him with any questions.

Chair O'Neil asked if the Applicant's intention was to not be present tonight.

Ms. Rybold explained the Applicant had gotten confused because he had asked her at one point if the architect needed to present, and she had told him no, given the nature of the project.

Ms. Jacobson confirmed the Board could move forward without the Applicant's presentation. It did not seem like the Applicant intended to attend tonight's hearing, perhaps because he was unclear about whether he had to be present. If anyone on the Board disagreed, they could voice that disagreement; however, the Board did not have to call the Applicant, as it was not their burden to do so.

The Board consented to move forward without the Applicant's testimony.

Chair O'Neil noted for the record that no one was in the audience and closed the public hearing at 7:01 pm.

Samy Nada moved to approve Resolution No. 343. Samuel Scull seconded the motion.

Chair O'Neil stated that he had a problem with an applicant that had notice, but failed to show up to an adjudicated body and to present testimony, especially when citizens volunteered on the Board, took time to go review the site. He had questions for the Applicant about the restaurant and traffic that could not be explained in the Traffic Study or in the Applicant's proceedings.

Motion failed 1 to 2 with Chair O'Neil and Samy Nada opposed.

Chair O'Neil read the rules of appeal into the record.

VII. Board Member Communications:

A. Results of the September 11, 2017 DRB Panel A meeting
B. Recent City Council Action Minutes
   - August 24, 2017 City Council Action Minutes
   - September 7, 2017 City Council Action Minutes

There were no comments or questions.

VIII. Staff Communications: There were none.

IX. Adjournment

The meeting adjourned at 7:05 p.m.

Respectfully submitted,

Paula Pinyerd, ABC Transcription Services, Inc. for
Shelley White, Planning Administrative Assistant

DEVELOPMENT REVIEW BOARD MEETING

MONDAY, OCTOBER 23, 2017
6:30 PM

VI. Public Hearing:

A. **Resolution No. 343. Site Modifications - 9600 SW Boeckman: Mac Martin, W-4 LLC – Applicant/Owner.** The applicant is requesting approval of a Stage II Final Plan Revision, Site Design Review and Type C Tree Plan for a parking lot expansion, associated landscaping modifications and trash enclosure modifications. The subject property is located at 9600 SW Boeckman Road on Tax Lots 202, 282, and 292 of Section 14B, Township 3 South, Range 1 West, Willamette Meridian, City of Wilsonville, Clackamas County, Oregon. Staff: Kimberly Rybold

Case Files:	DB17-0008	Stage II Final Plan Revision
	DB17-0009	Site Design Review
	DB17-0010	Type C Tree Plan

This item was remanded back to the Development Review Board by City Council at the October 2, 2017 City Council meeting in order to give the applicant an opportunity to present its case for approval to the DRB and to address any questions and concerns of the Board.

DEVELOPMENT REVIEW BOARD
RESOLUTION NO. 343

A RESOLUTION ADOPTING FINDINGS AND CONDITIONS APPROVING A STAGE II FINAL PLAN REVISION, SITE DESIGN REVIEW AND TYPE C TREE PLAN FOR A PARKING LOT EXPANSION, ASSOCIATED LANDSCAPING MODIFICATIONS AND TRASH ENCLOSURE MODIFICATIONS. THE SUBJECT PROPERTY IS LOCATED AT 9600 SW BOECKMAN ROAD ON TAX LOTS 202, 282 AND 292 OF SECTION 14B, T3S, R1W, CLACKAMAS COUNTY, OREGON. MAC MARTIN, W-4 LLC – APPLICANT / OWNER.

WHEREAS, an application, together with planning exhibits for the above-captioned development, has been submitted in accordance with the procedures set forth in Section 4.008 of the Wilsonville Code, and

WHEREAS, the Planning Staff has prepared staff report on the above-captioned subject dated September 18, 2017, and

WHEREAS, said planning exhibits and staff report were duly considered by the Development Review Board Panel B at a scheduled meeting conducted on September 25, 2017, at which time exhibits, together with findings and public testimony were entered into the public record, and

WHEREAS, the Development Review Board considered the subject and the recommendations contained in the staff report;

WHEREAS, due to a failure by the Applicant to appear at the meeting, the application was denied;

WHEREAS, the Applicant represented that Applicant did not understand the need for the Applicant to be present and asked the City to allow for another chance to present to the DRB;

WHEREAS the matter was therefore remanded to the DRB for reconsideration on the merits, with the Applicant having the burden of proof of the merits at a public hearing on October 23, 2017, at which time exhibits, together with findings and public testimony were entered into the public record, and

WHEREAS, interested parties, if any, have had an opportunity to be heard on the subject.

NOW, THEREFORE, BE IT RESOLVED that the Development Review Board of the City of Wilsonville does hereby adopt the staff report dated September 18, 2017, attached hereto as Exhibit A1, with findings and recommendations contained therein, and authorizes the Planning Director to issue permits consistent with said recommendations for:

DB17-0008 through DB17-0010, Stage II Final Plan, Site Design Review, and Type C Tree Removal Plan for a parking lot expansion, associated site modifications, and trash enclosure modifications located at 9600 SW Boeckman Road.

ADOPTED by the Development Review Board of the City of Wilsonville at a regular meeting thereof this 23rd day of October, 2017 and filed with the Planning Administrative Assistant on _____. This resolution is final on the l5th calendar day after the postmarked date of the

written notice of decision per *WC Sec 4.022(.09)* unless appealed per *WC Sec 4.022(.02)* or called up for review by the council in accordance with *WC Sec 4.022(.03).*

_____,
Shawn O'Neil, Chair - Panel B
Wilsonville Development Review Board

Attest:

_____
Shelley White, Planning Administrative Assistant

Exhibit A1
Planning Division Staff Report
Site Modifications 9600 SW Boeckman Rd.

Development Review Board Panel 'B'
Quasi-Judicial Public Hearing

Hearing Date:	September 25, 2017
Date of Report:	September 18, 2017
Application Nos.:	DB17-0008 Stage II Final Plan Revision DB17-0009 Site Design Review DB17-0010 Type C Tree Plan

Request/Summary: The Development Review Board is being asked to review a Class 3 Stage II Final Plan Revision, Site Design Review, and Type C Tree Plan for a parking lot expansion, associated landscaping modifications, and trash enclosure modifications.

Location: 9600 SW Boeckman Road. South side of SW Boeckman Road, west of the Portland and Western Railroad. The property is specifically known as Tax Lots 202, 282 and 292, Section 14B, Township 3 South, Range 1 West, Willamette Meridian, City of Wilsonville, Clackamas County, Oregon.

Owner/Applicant:	Mac Martin W-4 LLC

Comprehensive Plan Designation: Industrial

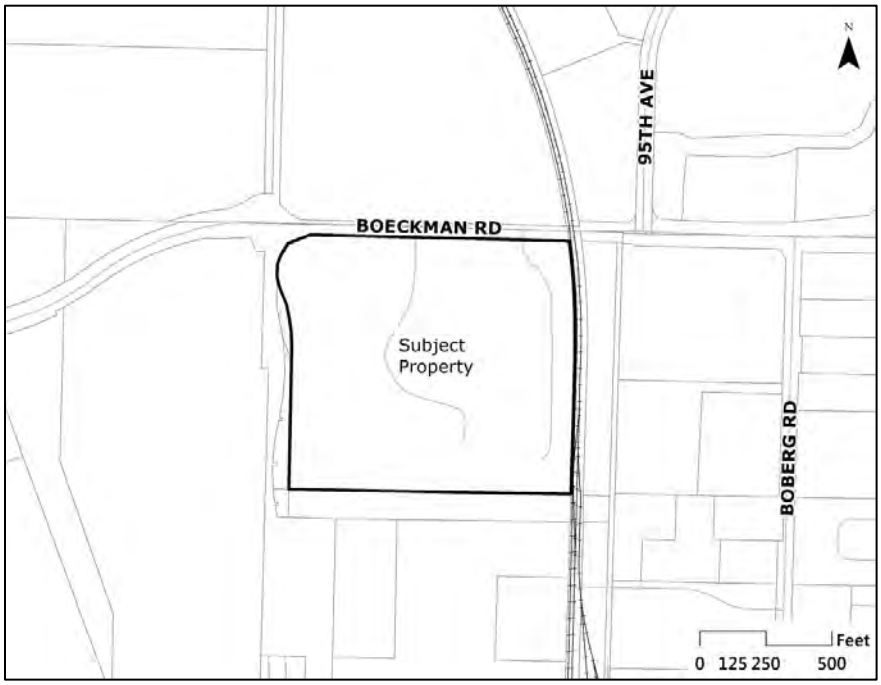
Zone Map Classification:	PDI (Planned Development Industrial)
Staff Reviewers:	Kimberly Rybold, Associate Planner Steve Adams PE, Development Engineering Manager Kerry Rappold, Natural Resources Program Manager Don Walters, Building Plans Examiner

Staff Recommendation: **Approve with conditions** the requested revised Stage II Final Plan, Site Design Review, and Type C Tree Removal request.

Applicable Review Criteria:

Development Code:	
Section 4.008	Application Procedures-In General
Section 4.009	Who May Initiate Application
Section 4.010	How to Apply
Section 4.011	How Applications are Processed
Section 4.014	Burden of Proof
Section 4.031	Authority of the Development Review Board
Subsection 4.035 (.04)	Site Development Permit Application
Subsection 4.035 (.05)	Complete Submittal Requirement
Section 4.110	Zones
Section 4.117	Standards Applying to Industrial Development in All Zones
Section 4.118	Standards Applying to Planned Development Zones
Section 4.135	Planned Development Industrial Zone (PDI)
Section 4.140	Planned Development Regulations
Section 4.154	On-site Pedestrian Access and Circulation
Section 4.155	Parking, Loading, and Bicycle Parking
Section 4.167	Access, Ingress, and Egress
Section 4.171	Protection of Natural Features and Other Resources
Section 4.175	Public Safety and Crime Prevention
Section 4.176	Landscaping, Screening, and Buffering
Section 4.177	Street Improvement Standards
Section 4.179	Mixed Solid Waste and Recycling
Sections 4.199.20 through 4.199.60	Outdoor Lighting
Sections 4.300 through 4.320	Underground Utilities
Sections 4.400 through 4.440 as applicable	Site Design Review
Sections 4.600-4.640.20	Tree Preservation and Protection
Other Planning Documents:	
Wilsonville Comprehensive Plan	

Vicinity Map

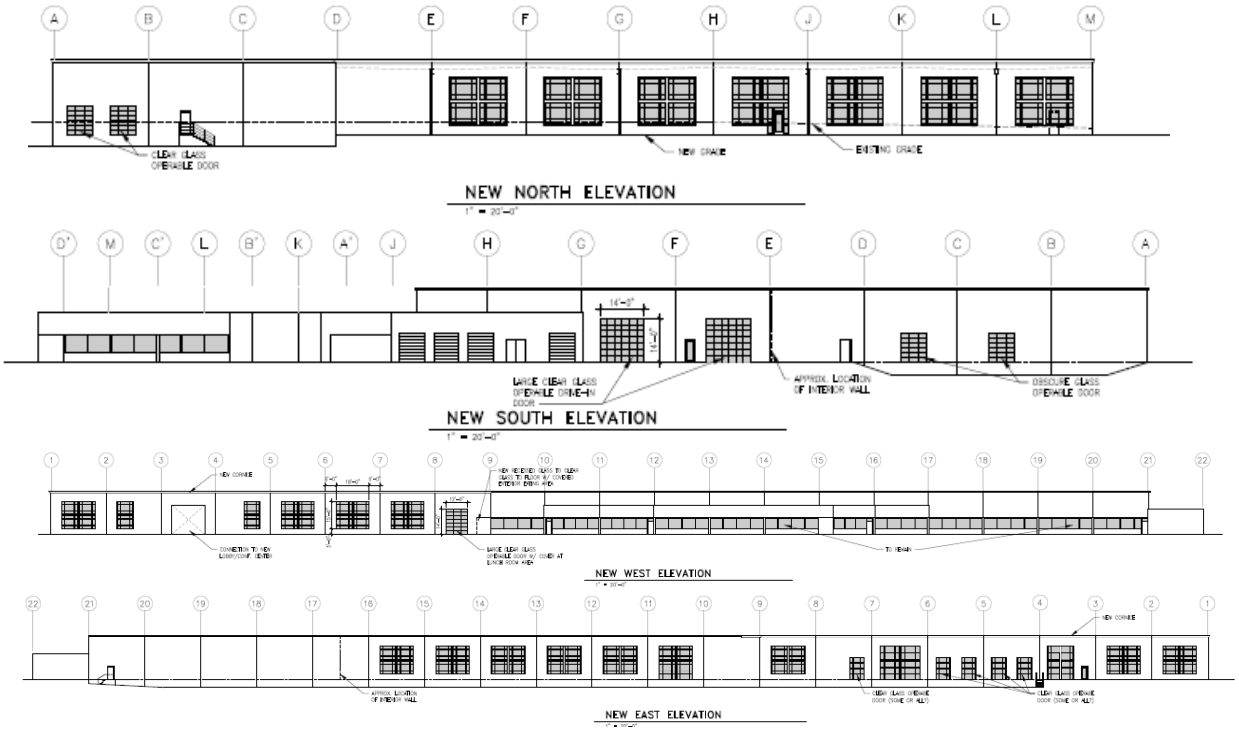


Background:

The development of the subject building occurred in the 1970s and has served a number of industrial users over its history including a publishing plant (RFD Publications) and a warehouse for doors and other building materials (OrePac). The applicant is in the process of converting the building to high tech manufacturing and research. Currently the site contains one large warehouse/office that houses DWFritz Automation and the temporary use of Grace Chapel. The existing site development is summarized in the table below:

Item	Lot Coverage - Square Feet	Lot Coverage - Percentage
Building Area	161,207 SF	15%
Parking and Drives	227,174 SF	21%
Landscaping	678,839 SF	64%
Total Site Area	**1,067,220 SF**	**100%**

Planning staff previously approved administratively new windows, cornices, and building colors (case file AR16-0063). Planning staff subsequently approved administratively a new building entryway (case file AR17-0041). The applicant pursued these administrative approvals separately to progress on portions of the construction earlier. The current application is a continuation of this conversion, and includes revisions to the current onsite parking, a building entry ramp, trash enclosure modifications, and associated landscaping modifications. A future application is anticipated for signage. As the request involves the addition of more than 10 parking spaces the City's Development Code requires review by the Development Review Board.



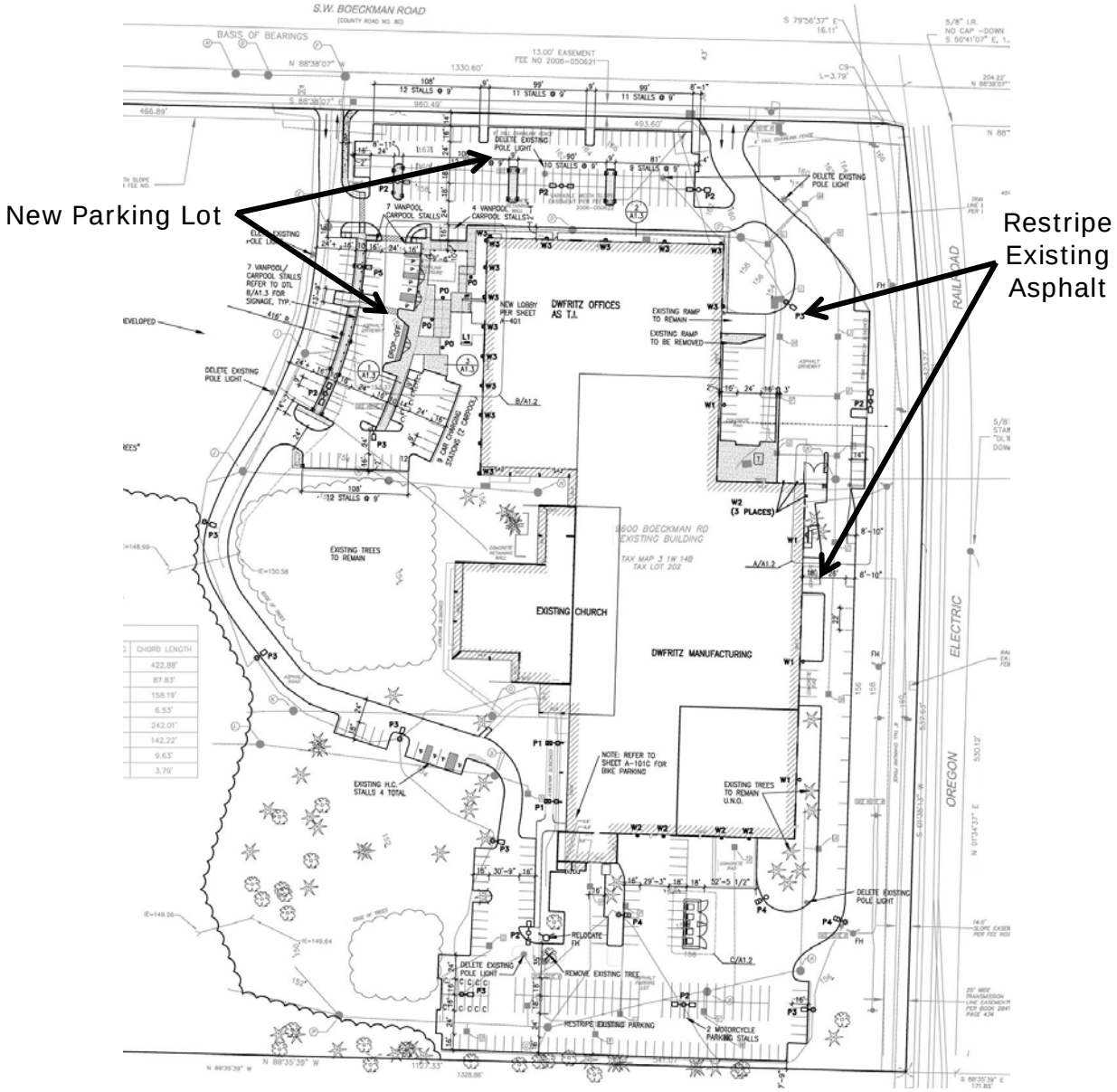
Architectural modifications approved in 2016

Revised building entryway approved in 2017

Summary:

Stage II Final Plan Revision (DB17-0008)

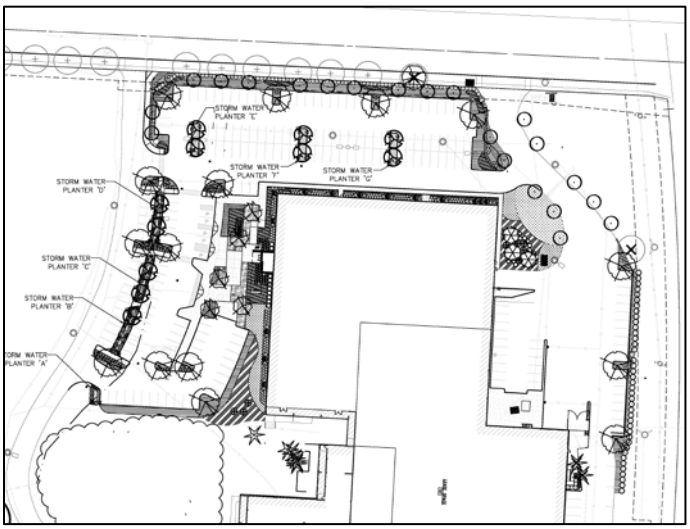
The proposed Stage II Final Plan Revision evaluates the function and design of the proposed site modifications for the DWFritz building. This includes the construction of a new parking lot and restriping of existing paved areas to accommodate the conversion of the building to high tech manufacturing and research. This also includes the construction of a new entry ramp on the east side of the building, trash enclosure modifications, and associated landscaping and screening.



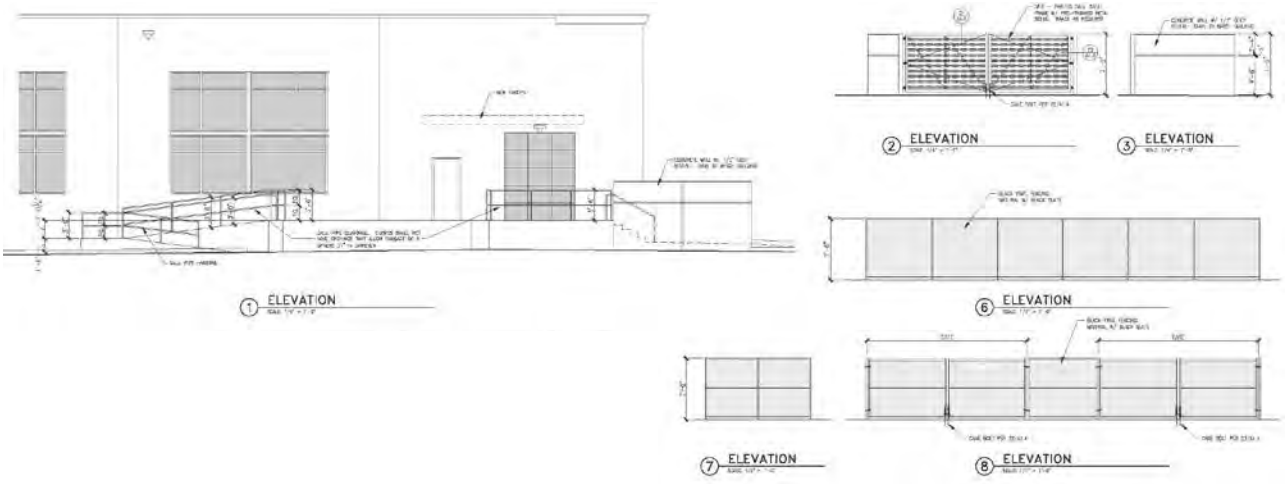
Proposed Parking Lot Expansion

Site Design Review (DB17-0009)

Site Design Review evaluates the appearance of the proposed landscaping, along with the design of the updated trash storage enclosures. The proposed professionally-designed landscaping provides the required screening and a variety of landscape materials meeting or exceeding City standards. Likewise, fencing provided with the proposed trash enclosures is coordinated with the previously-approved architectural modifications to the building, utilizing combination of stained concrete and black vinyl fencing to screen these areas.



Proposed Landscaping



Proposed Ramp and Trash Enclosures

Type C Tree Plan (DB17-0010)

The existing trees are located around the building, in the parking lot, in the right-of-way along SW Boeckman Road, and in the undeveloped portion of the site to the west. Four distinct tree stands are located on the western portions of the site, including portions located within the Significant Resource Overlay Zone (SROZ).

Outside of these tree stands, the arborist report identifies 74 trees on the DWFritz site and nearby areas impacted by the proposal. The applicant proposes removing seven of the onsite trees. Four of these trees are Douglas-fir, while the other trees include scarlet oak, willow, and black cottonwood.

The applicant proposes to exceed mitigation requirements for the tree removal by planting 69 additional trees on site.

Discussion Points:

Traffic Study

While the reuse of a building for the same type of use would not typically require a traffic study, the traffic analysis previously conducted for this site is more than 25 years old. As such, the City has worked with the applicant to do an updated traffic study. This information is not being used as criteria to approve or deny the current requests, but does provide the City information about traffic expected to be generated from the site. This information will be helpful to anticipate future transportation needs in the area as well as provide helpful information for future transportation studies in the area.

The traffic study, prepared by DKS Associates, evaluated two different phases development for this site. Phase 1 reflects the renovation of the existing building into a combined office and manufacturing space. Phase 2 assumes an additional 70,000 square feet of high-tech manufacturing use on the site, along with a 4,000-square-foot sit-down restaurant. All of the study intersections meet the City's Level of Service (LOS) D p.m. peak operating standard and ODOT operating standards in both Phase 1 alone and Phase 1 and 2 combined, factoring in existing development and Stage II development approvals. In order to implement Phase 2 as evaluated in this study, modifications to the Stage I Preliminary Plan and Stage II Final Plan for the subject property would be required.

Parking

Presently, the subject property has 156 parking spots, the majority of which are on the south side of the site and not proximate to the recently approved building entryway. The proposed additional parking will provide direct access to the main building entryway, with spaces provided for ADA access, carpool/vanpool parking, and electric vehicle charging. The number of parking spaces exceeds the minimum required for the existing use; however, the code establishes no maximum parking requirement for manufacturing uses that would limit the allowable amount of parking on this site. The proposed parking is located on a portion of the site that minimizes the need for extensive grading and tree removal.

Conclusion and Conditions of Approval:

Staff has reviewed the Applicant's analysis of compliance with the applicable criteria. The Staff report adopts the applicant's responses as Findings of Fact except as noted in the Findings.

Based on the Findings of Fact and information included in this Staff Report, and information received from a duly advertised public hearing, Staff recommends that the Development Review Board approve the proposed application (DB17-0008 through DB17-0010) with the following conditions:

Planning Division Conditions:

Request A: DB17-0008 Stage II Final Plan Revision

PDA 1.	The approved final plan and stage development schedule shall control the issuance of all building permits and shall restrict the nature, location and design of all uses. Minor changes in an approved preliminary or final development plan may be approved by the Planning Director through the Class I Administrative Review Process if such changes are consistent with the purposes and general character of the development plan. All other modifications, including extension or revision of the stage development schedule, shall be processed in the same manner as the original application and shall be subject to the same procedural requirements. See Finding A12.
PDA 2.	All travel lanes shall be constructed to be capable of carrying a twenty-three (23) ton load. See Finding A58.
PDA 3.	Where landscape plans indicate a choice between Marshall Seedless Ash and Village Green Zelkova, the applicant shall plant Village Green Zelkova. See Finding A54.

Request B: DB17-0009 Site Design Review

PDB 1.	Construction, site development, and landscaping shall be carried out in substantial accord with the Development Review Board approved plans, drawings, sketches, and other documents. Minor revisions may be approved by the Planning Director through administrative review pursuant to Section 4.030. See Finding B3.
PDB 2.	All landscaping required and approved by the Board shall be installed prior to use of the proposed parking unless security equal to one hundred and ten percent (110%) of the cost of the landscaping as determined by the Planning Director is filed with the City assuring such installation within six (6) months of occupancy. "Security" is cash, certified check, time certificates of deposit, assignment of a savings account or such other assurance of completion as shall meet with the approval of the City Attorney. In such cases the developer shall also provide written authorization, to the satisfaction of the City Attorney, for the City or its designees to enter the property and complete the landscaping as approved. If the installation of the landscaping is not completed within the six-month period, or within an extension of time authorized by the Board, the security may be used by the City to complete the installation. Upon completion of the installation, any portion of the remaining security deposited with the City will be returned to the applicant. See Finding B11.
PDB 3.	The approved landscape plan is binding upon the applicant/owner. Substitution of plant materials, irrigation systems, or other aspects of an approved landscape plan

	shall not be made without official action of the Planning Director or Development Review Board, pursuant to the applicable sections of Wilsonville's Development Code. See Finding B12.
PDB 4.	All landscaping shall be continually maintained, including necessary watering, weeding, pruning, and replacing, in a substantially similar manner as originally approved by the Board, unless altered as allowed by Wilsonville's Development Code. See Findings B13 and B14.
PDB 5.	The following requirements for planting of shrubs and ground cover shall be met: • Non-horticultural plastic sheeting or other impermeable surface shall not be placed under landscaping mulch. • Native topsoil shall be preserved and reused to the extent feasible. • Surface mulch or bark dust shall be fully raked into soil of appropriate depth, sufficient to control erosion, and shall be confined to areas around plantings. • All shrubs shall be well branched and typical of their type as described in current AAN Standards and shall be equal to or better than 2-gallon containers and 10" to 12" spread. • Shrubs shall reach their designed size for screening within three (3) years of planting. • Ground cover shall be equal to or better than the following depending on the type of plant materials used: gallon containers spaced at 4 feet on center minimum, 4" pot spaced 2 feet on center minimum, 2-1/4" pots spaced at 18 inch on center minimum. • No bare root planting shall be permitted. • Ground cover shall be sufficient to cover at least 80% of the bare soil in required landscape areas within three (3) years of planting. • Appropriate plant materials shall be installed beneath the canopies of trees and large shrubs to avoid the appearance of bare ground in those locations. • Compost-amended topsoil shall be integrated in all areas to be landscaped, including lawns. See Finding B20.
PDB 6.	All trees shall be balled and burlapped and conform in size and grade to "American Standards for Nursery Stock" current edition. See Finding B21.
PDB 7.	Plant materials shall be installed to current industry standards and be properly staked to ensure survival. Plants that die shall be replaced in kind, within one growing season, unless appropriate substitute species are approved by the City. See Finding B25.
PDB 8.	Final review of the proposed building lighting's conformance with the Outdoor Lighting Ordinance will be determined at the time of Building Permit issuance.

Request C: DB17-0010 Type C Tree Plan

PDC 1.	This approval for removal applies only to the seven (7) trees identified in the Applicant's submitted materials. All other trees on the property shall be maintained unless removal is approved through separate application.
PDC 2.	The Applicant shall submit an application for a Type 'C' Tree Removal Permit on

	the Planning Division's Development Permit Application form, together with the applicable fee. In addition to the application form and fee, the Applicant shall provide the City's Planning Division an accounting of trees to be removed within the project site, corresponding to the approval of the Development Review Board. The applicant shall not remove any trees from the project site until the tree removal permit, including the final tree removal plan, have been approved by the Planning Division staff.
PDC 3.	The Applicant/Owner shall install the required seven (7) mitigation trees, as shown in the Applicant's sheet L1.0, per Section 4.620 WC.
PDC 4.	The permit grantee or the grantee's successors-in-interest shall cause the replacement trees to be staked, fertilized and mulched, and shall guarantee the trees for two (2) years after the planting date. A "guaranteed" tree that dies or becomes diseased during the two (2) years after planting shall be replaced.
PDC 5.	Prior to site grading or other site work that could damage trees, the Applicant/Owner shall install six-foot-tall chain-link fencing around the drip line of preserved trees. The fencing shall comply with Wilsonville Public Works Standards Detail Drawing RD-1230. See Finding C14.

The following Conditions of Approval are provided by the Engineering, Natural Resources, or Building Divisions of the City's Community Development Department or Tualatin Valley Fire and Rescue, all of which have authority over development approval. A number of these Conditions of Approval are not related to land use regulations under the authority of the Development Review Board or Planning Director. Only those Conditions of Approval related to criteria in Chapter 4 of Wilsonville Code and the Comprehensive Plan, including but not limited to those related to traffic level of service, site vision clearance, recording of plats, and concurrency, are subject to the Land Use review and appeal process defined in Wilsonville Code and Oregon Revised Statutes and Administrative Rules. Other Conditions of Approval are based on City Code chapters other than Chapter 4, state law, federal law, or other agency rules and regulations. Questions or requests about the applicability, appeal, exemption or non-compliance related to these other Conditions of Approval should be directed to the City Department, Division, or non-City agency with authority over the relevant portion of the development approval.

Engineering Division Conditions:

Request A: DB17-0008 Stage II Final Plan Revision

PF 1.	Public Works Plans and Public Improvements shall conform to the "Public Works Plan Submittal Requirements and Other Engineering Requirements" in Exhibit C1.
PF 2.	Site access shall be via the two existing driveways located on Boeckman Road. It should be noted that with the reclassification of Boeckman Road to a minor arterial in the 2013 Transportation System Plan these driveways no longer comply with access spacing requirements of 1,000 feet preferred and 600 feet minimum for minor arterials. However, the driveways align with existing driveways on the north side of the road and a waiver to access spacing standards is allowed.
PF 3.	No site access shall be taken to/from Kinsman Road.

PF 4.	City records indicate no Public Utility Easement exists on the property fronting Boeckman Road. The City's 2013 Transportation System Plan classifies Boeckman Road as a Minor Arterial. Per Section 101.8.14 of the Public Works Standards, applicant shall be required to dedicate a 10-ft wide Public Utility Easement along all property fronting Boeckman Road.
PF 5.	Both Boeckman Road and Kinsman Road (under construction) are or will be fully developed and in compliance with the 2013 Transportation System Plan and to Public Works Standards. No improvements to either road are required and no additional right-of-way is needed.

Natural Resources Division Conditions:

All Requests

NR 1.	Natural Resource Division Requirements and Advisories listed in Exhibit C2 apply to the proposed development.

Building Division Conditions:

All Requests

BD 1.	**Accessible Parking.** While what is shown on these preliminary plans appears to be in general compliance with the code, the plans do not contain sufficient information to fully review the accessible parking or the accessible drop-off zone. The additional information available at the building permit submittal may require changes to the design.

Master Exhibit List:

The following exhibits are hereby entered into the public record by the Development Review Board as confirmation of its consideration of the application as submitted. This is the exhibit list that includes exhibits for Planning Case File DB17-0008 through DB17-0010.

Planning Staff Materials

A1. Staff report and findings (this document)
A2. Staff's Presentation Slides for Public Hearing (to be presented at Public Hearing)

Materials from Applicant

B1. Application Form and Submitted Materials
- Application Form
- Project Narrative
- Tree Maintenance and Protection Plan
- Lighting Specifications
- Materials Board
- Preliminary Stormwater Report and Calculations

Letter from Republic Services
Traffic Impact Analysis (available online, printed copy available upon request)

B2. Drawings and Plans
A1.1 Site Plan
A1.2 Enlarged Site Plans and Details
A1.3 Site Details
A1.4 Site Details
A-152-Bike
L1.0 Landscape Plan
L2.0 Landscape Detail
L3.0 Tree Protection Plan
Lighting Plan
Lighting Analysis
C0.1 General Notes
C0.2 Existing Conditions
C0.3 Demolition Plan
C1.0 Site Plan
C2.0 Grading Plan
C2.1 Grading Enlargement
C2.2 Grading Enlargement
C3.0 Utility Plan
C3.1 Utility Enlargement
C3.2 Utility Enlargement
C4.0 Details

Development Review Team Correspondence

C1. Engineering Findings, Conditions, and Requirements
C2. Natural Resource Findings, Conditions, and Requirements
C3. Building Division Conditions, Requirements, and Advisories
C4. Email from Joshua Brooking

Procedural Statements and Background Information:

1. The statutory 120-day time limit applies to this application. The application was received on March 15, 2017. On March 28, 2017 staff conducted a completeness review within the statutorily allowed 30-day review period and found the application to be incomplete. On August 21, 2017, the Applicant submitted new materials. On September 1, 2017 the application was deemed complete. The City must render a final decision for the request, including any appeals, by December 30, 2017.

2. Surrounding land uses are as follows:

Compass Direction	Zone:	Existing Use:
North:	PDI	Industrial
East:	PDI	Industrial
South:	PDI	Industrial
West:	RA-H	Vacant

3. Previous Planning Approvals:
   74RZ09 Zone Change from RA-1 to Industrial
   91PC13 Stage I Modification, Stage II (parking addition)
   91DR06 Landscape, Parking Lot Addition
   AR16-0015 Tentative Partition Plat and SROZ Map Verification
   AR16-0063 Class II Review of Architectural Changes and Minor Grading
   AR17-0041 Class II Review of Building Entryway Modification

4. The applicant has complied with Sections 4.013-4.031 of the Wilsonville Code, said sections pertaining to review procedures and submittal requirements. The required public notices have been sent and all proper notification procedures have been satisfied.

Findings:

NOTE: Pursuant to Section 4.014 the burden of proving that the necessary findings of fact can be made for approval of any land use or development application rests with the applicant in the case.

General Information

Application Procedures-In General
Section 4.008

Criteria: This section lists general application procedures applicable to a number of types of land use applications and also lists unique features of Wilsonville's development review process.
Response: The application is being processed in accordance with the applicable general procedures of this Section.

Initiating Application
Section 4.009

Criterion: "Except for a Specific Area Plan (SAP), applications involving specific sites may be filed only by the owner of the subject property, by a unit of government that is in the process of acquiring the property, or by an agent who has been authorized by the owner, in writing, to apply."
Response: The application has been submitted on behalf of the property owner, W-4 LLC, and is signed by an authorized representative.

Pre-Application Conference
Subsection 4.010 (.02)

Criteria: This section lists the pre-application process.
Response: Staff previously consulted with the applicant about prior development permit applications, providing an understanding of the review process. As a result, it was determined that an additional pre-application conference for the proposed parking lot expansion and associated modifications was not necessary.

Lien Payment before Approval
Subsection 4.011 (.02) B.

Criterion: "City Council Resolution No. 796 precludes the approval of any development application without the prior payment of all applicable City liens for the subject property. Applicants shall be encouraged to contact the City Finance Department to verify that there are no outstanding liens. If the Planning Director is advised of outstanding liens while an application is under consideration, the Director shall advise the applicant that payments must be made current or the existence of liens will necessitate denial of the application."
Response: No applicable liens exist for the subject property. The application can thus move forward.

General Submission Requirements
Subsection 4.035 (.04) A.

Criteria: "An application for a Site Development Permit shall consist of the materials specified as follows, plus any other materials required by this Code." Listed 1. through 6. j.
Response: The applicant has provided all of the applicable general submission requirements contained in this subsection.

Zoning-Generally
Section 4.110

Criteria: "The use of any building or premises or the construction of any development shall be in conformity with the regulations set forth in this Code for each Zoning District in which it is located, except as provided in Sections 4.189 through 4.192." "The General Regulations listed in Sections 4.150 through 4.199 shall apply to all zones unless the text indicates otherwise."

Response: This proposed development is in conformity with the applicable zoning district and general development regulations listed in Sections 4.150 through 4.199 have been applied in accordance with this Section.

Request A: DB17-0008 Stage II Final Plan Revision

As described in the Findings below, the applicable criteria for this request are met or will be met by Conditions of Approval.

Planned Development Regulations-Generally

Planned Development Purpose
Subsection 4.140 (.01)

A1. **Criterion:** The proposed Stage II Final Plan shall be consistent with the Planned Development Regulations purpose statement.

Response: The proposed site modifications are consistent with this purpose statement, as flexibility in the location of parking and site circulation allows for the preservation of trees and SROZ on the subject property.

Ownership Requirements
Subsection 4.140 (.03)

A2. **Criterion:** "The tract or tracts of land included in a proposed Planned Development must be in one (1) ownership or control or the subject of a joint application by the owners of all the property included."

Response: The land included in the proposed Stage II Final Plan is under the single ownership of W-4 LLC, and Mac Martin, an authorized representative, has signed the application.

Professional Design Team
Subsection 4.140 (.04)

A3. **Criteria:** "The applicant for all proposed Planned Developments shall certify that the professional services of the appropriate professionals have been utilized in the planning process for development. One of the professional consultants chosen by the applicant shall be designated to be responsible for conferring with the planning staff with respect to the concept and details of the plan."

Response: As can be found in the applicant's submitted materials, appropriate professionals have been involved in the planning and permitting process. Bob Wells with Lance Mueller and Associates Architects has been designated the coordinator for the planning portion of the project.

Stage II Final Plan Submission Requirements and Process

Timing of Submission
Subsection 4.140 (.09) A.

A4. **Criterion:** "Unless an extension has been granted by the Development Review Board, within two (2) years after the approval or modified approval of a preliminary development plan (Stage I), the applicant shall file with the City Planning Department a final plan for the entire development or when submission in stages has been authorized pursuant to Section 4.035 for the first unit of the development…"

Response: The proposed application is for an expansion of the existing building's parking lot with other minor site modifications. No changes in use or size of the existing building are proposed.

Stage I Conformance, Submission Requirements
Subsection 4.140 (.09) C.

A5. **Criteria:** "The final plan shall conform in all major respects with the approved preliminary development plan, and shall include all information included in the preliminary plan plus the following:" listed 1. through 6.

Response: The Stage II plan substantially conforms to the Stage I Master plan, as approved in Case File No. 91PC13. The applicant has provided the required drawings and other documents showing all the additional information required by this subsection.

Stage II Final Plan Detail
Subsection 4.140 (.09) D.

A6. **Criterion:** "The final plan shall be sufficiently detailed to indicate fully the ultimate operation and appearance of the development or phase of development."

Response: The applicant has provided sufficiently detailed information to indicate fully the ultimate operation the development, including a detailed site plan, landscaping plan, and elevation drawings for the new entrance ramp and trash enclosure modifications.

Submission of Legal Documents
Subsection 4.140 (.09) E.

A7. **Criterion:** "Copies of legal documents required by the Development Review Board for dedication or reservation of public facilities, or for the creation of a non-profit homeowner's association, shall also be submitted."

Response: No additional legal documentation is required for dedication or reservation of public facilities.

Expiration of Approval
Subsection 4.140 (.09) I. and Section 4.023

A8. **Criterion:** This subsection and section identify the period for which Stage II approvals are valid.

Response: The Stage II Approval, along other associated applications, will expire two (2) years after approval, unless an extension is approved in accordance with these subsections.

Consistency with Plans
Subsection 4.140 (.09) J. 1.

A9. **Criterion:** "The location, design, size and uses, both separately and as a whole, are consistent with the Comprehensive Plan, and with any other applicable plan, development map or Ordinance adopted by the City Council."

Response: The subject property has previously been zoned Planned Development Industrial consistent with the Industrial designation in the Comprehensive Plan. To staff's knowledge, the location, design, size, and uses are consistent with other applicable plans, maps, and ordinances, or will be by specific conditions of approval.

Traffic Concurrency
Subsection 4.140 (.09) J. 2.

A10. **Criteria:** "That the location, design, size and uses are such that traffic generated by the development at the most probable used intersection(s) can be accommodated safely and without congestion in excess of Level of Service D, as defined in the Highway Capacity Manual published by the National Highway Research Board, on existing or immediately planned arterial or collector streets and will, in the case of commercial or industrial developments, avoid traversing local streets. Immediately planned arterial and collector streets are those listed in the City's adopted Capital Improvement Program, for which funding has been approved or committed, and that are scheduled for completion within two years of occupancy of the development or four year if they are an associated crossing, interchange, or approach street improvement to Interstate 5." Additional qualifiers and criteria listed a. through e.

Response: While the reuse of a building for the same type of use would not typically require a traffic study, the traffic analysis previously conducted for this site is more than 25 years old. As such, the City has worked with the applicant to do an updated traffic study. This information is not being used as criteria to approve or deny the current requests, but does provide the City information about traffic expected to be generated from the site. As stated on page 3 of the Transportation Impact Study prepared by DKS Associates dated August 14, 2017 (component of Exhibit B2) the building renovation is anticipated to generate 105 (38 in, 67 out) p.m. peak hour trips. As shown on Page 6 of the Transportation Impact Study, the Level of Service (LOS) D standard will continue to be met by existing street improvements at the studied intersections with existing, planned, and the proposed parking lot expansion.

Facilities and Services Concurrency
Subsection 4.140 (.09) J. 3.

A11. **Criterion:** "That the location, design, size and uses are such that the residents or establishments to be accommodated will be adequately served by existing or immediately planned facilities and services."
Response: Facilities and services, including stormwater utilities, are available and sufficient to serve the proposed development.

Adherence to Approved Plans
Subsection 4.140 (.09) L.

A12. **Criterion:** "The applicant shall agree in writing to be bound, for her/himself and her/his successors in interest, by the conditions prescribed for approval of a development. The approved final plan and stage development schedule shall control the issuance of all building permits and shall restrict the nature, location and design of all uses. Minor changes in an approved preliminary or final development plan may be approved by the Director of Planning if such changes are consistent with the purposes and general character of the development plan. All other modifications, including extension or revision of the stage development schedule, shall be processed in the same manner as the original application and shall be subject to the same procedural requirements."
Response: Condition of Approval PDA 1 ensures adherence to approved plans except for minor revisions by the Planning Director.

Standards Applying in All Planned Development Zones

Underground Utilities
Subsection 4.118 (.02)

A13. **Criterion:** "Underground Utilities shall be governed by Sections 4.300 to 4.320. All utilities above ground shall be located so as to minimize adverse impacts on the site and neighboring properties."
Response: All additional utilities on the property are required to be underground.

Waivers
Subsection 4.118 (.03)

A14. **Criteria:** "Notwithstanding the provisions of Section 4.140 to the contrary, the Development Review Board, in order to implement the purposes and objectives of Section 4.140, and based on findings of fact supported by the record may" waive a number of standards as listed in A. through E.
Response: No waivers are being requested.

Other Requirements or Restrictions
Subsection 4.118 (.03) E.

A15. **Criteria:** "Notwithstanding the provisions of Section 4.140 to the contrary, the Development Review Board, in order to implement the purposes and objectives of Section 4.140, and based on findings of fact supported by the record may adopt other requirements or restrictions, inclusive of, but not limited to, the following:" Listed 1. through 12.

Response: No additional requirements or restrictions are recommended pursuant to this subsection.

Impact on Development Cost
Subsection 4.118 (.04)

A16. **Criterion:** "The Planning Director and Development Review Board shall, in making their determination of compliance in attaching conditions, consider the effects of this action on availability and cost. The provisions of this section shall not be used in such a manner that additional conditions, either singularly or cumulatively, have the effect of unnecessarily increasing the cost of development. However, consideration of these factors shall not prevent the Board from imposing conditions of approval necessary to meet the minimum requirements of the Comprehensive Plan and Code."

Response: It is staff's professional opinion that the determination of compliance or attached conditions does not unnecessarily increase the cost of development, and no evidence has been submitted to the contrary.

Requiring Tract Dedications
Subsection 4.118 (.05)

A17. **Criteria:** "The Planning Director, Development Review Board, or on appeal, the City Council, may as a condition of approval for any development for which an application is submitted, require that portions of the tract or tracts under consideration be set aside, improved, conveyed or dedicated for the following uses:" Recreational Facilities, Open Space Area, Easements."

Response: No additional tracts are being required for the purposes given.

Habitat Friendly Development Practices
Subsection 4.118 (.09)

A18. **Criteria:** "To the extent practicable, development and construction activities of any lot shall consider the use of habitat-friendly development practices, which include:

A. Minimizing grading, removal of native vegetation, disturbance and removal of native soils, and impervious area;

B. Minimizing adverse hydrological impacts on water resources, such as using the practices described in Part (a) of Table NR-2 in Section 4.139.03, unless their use is prohibited by an applicable and required state or federal permit, such as a permit required under the federal Clean Water Act, 33 U.S.C. §§1251 et seq., or the federal Safe

Drinking Water Act, 42 U.S.C. §§300f et seq., and including conditions or plans required by such permit;

C. Minimizing impacts on wildlife corridors and fish passage, such as by using the practices described in Part (b) of Table NR-2 in Section 4.139.03; and

D. Using the practices described in Part (c) of Table NR-2 in Section 4.139.03."

Response: The grading will be limited to that needed for the proposed improvements, no significant native vegetation would be retained by an alternative site design, the City's stormwater standards will be met limiting adverse hydrological impacts on water resources, and no impacts on wildlife corridors or fish passages have been identified.

Planned Development Industrial (PDI) Zone

Typically Permitted Uses
Subsection 4.135 (.03)

A19. **Criteria:** This subsection establishes the typically permitted uses in the PDI Zone.

Response: The proposed use is consistent with the Stage I Master Plan as well as with the purpose of the PDI zone as it includes industrial operations as well as associated and supportive uses.

Industrial Performance Standards

Industrial Performance Standards
Subsection 4.135 (.05)

A20. **Criteria:** "The following performance standards apply to all industrial properties and sites within the PDI Zone, and are intended to minimize the potential adverse impacts of industrial activities on the general public and on other land uses or activities. They are not intended to prevent conflicts between different uses or activities that may occur on the same property." Standards listed A. through N.

Response: The proposed site modifications will ensure the development's continued compliance with the listed performance standards.

On-site Pedestrian Access and Circulation

Continuous Pathway System
Section 4.154 (.01) B. 1.

A21. **Criterion:** "A pedestrian pathway system shall extend throughout the development site and connect to adjacent sidewalks, and to all future phases of the development, as applicable."

Response: There is a continuous walkway system throughout new parking area that connects all of the primary building exits, the parking and surrounding area to the sidewalk.

Safe, Direct, and Convenient
Section 4.154 (.01) B. 2.

A22. **Criteria:** "Pathways within developments shall provide safe, reasonably direct, and convenient connections between primary building entrances and all adjacent parking areas, recreational areas/playgrounds, and public rights-of-way and crosswalks based on all of the following criteria:"

Response: The plans show a pedestrian pathway directly from the Boeckman Road sidewalk to the parking lot, connecting to the main building entryway.

Free from Hazards/Smooth Surface
Section 4.154 (.01) B. 2. a.

A23. **Criterion:** "Pedestrian pathways are designed primarily for pedestrian safety and convenience, meaning they are free from hazards and provide a reasonably smooth and consistent surface."

Response: The pathways will be constructed using concrete and will provide a smooth and consistent surface.

Reasonably Direct
Section 4.154 (.01) B. 2. b.

A24. **Criterion:** "The pathway is reasonably direct. A pathway is reasonably direct when it follows a route between destinations that does not involve a significant amount of unnecessary out-of-direction travel."

Response: The pathway from the Boeckman Road sidewalk travels along the western driveway entrance, connecting to the main building entryway. There is no unnecessary out of direction travel.

Building Entrance Connectivity/Meets ADA
Section 4.154 (.01) B. 2. c.

A25. **Criterion:** "The pathway connects to all primary building entrances and is consistent with the Americans with Disabilities Act (ADA) requirements."

Response: Five ADA parking spaces are provided proximate to the main building entryway, connecting to the sidewalk via accessible ramps. These spaces are provided in addition to the four existing ADA spaces located on the southwest side of the building. Condition of Approval BD1 ensures that facilities meeting ADA requirements are provided during building permit review.

Vehicle/Pathway Separation
Section 4.154 (.01) B. 3.

A26. **Criterion:** "Except as required for crosswalks, per subsection 4, below, where a pathway abuts a driveway or street it shall be vertically or horizontally separated from the vehicular lane. For example, a pathway may be vertically raised six inches above the abutting travel lane, or horizontally separated by a row of bollards."

Response: The walkway adjacent to the building will be raised six inches above the adjacent parking lot to provide vertical separation.

Crosswalks
Section 4.154 (.01) B. 4.

A27. **Criterion:** "Where a pathway crosses a parking area or driveway, it shall be clearly marked with contrasting paint or paving materials (e.g., pavers, light-color concrete inlay between asphalt, or similar contrast)."
Response: As indicated in the applicant's site plan, all crosswalks will be marked by contracting paint colors/striping.

Pathway Width and Surface
Section 4.154 (.01) B. 5.

A28. **Criterion:** "Primary pathways shall be constructed of concrete, asphalt, brick/masonry pavers, or other durable surface, and not less than five (5) feet wide. Secondary pathways and pedestrian trails may have an alternative surface except as otherwise required by the ADA."
Response: All proposed pathways are 5 feet or wider and will be constructed of concrete.

Pathway Signs
Section 4.154 (.01) B. 6.

A29. **Criterion:** "All pathways shall be clearly marked with appropriate standard signs."
Response: No pathways needing directional signage are proposed.

Parking Area Design Standards

Minimum and Maximum Parking
Section 4.155 (.03) G.

A30. **Criteria:** This subsection defines the minimum and maximum parking standards for various land uses.
Response: The DWFritz facility requires a minimum of 364 parking spaces with no limit on the maximum number of spaces. The applicant proposes 402 spaces. The calculation of parking spaces is as follows:

Office* (86,167 sf)	Minimum 2.7 spaces per 1,000 square feet = 233
	Maximum 4.1 per 1,000 square feet = 354
Manufacturing (81,964 sf)	Minimum 1.6 per 1,000 square feet = 131
	Maximum = no limit
Total (rounded to nearest whole number):	Minimum – 364 spaces
	Maximum – No limit

*Note: Includes area presently used as a chapel that will be vacated in early 2018

Other Parking Area Design Standards
Subsections 4.155 (.02) and (.03)

A31. **Criteria:** These subsections list a number of standards affecting the design of parking areas.

Response: The applicable standards are met as follows:

Standard	Met	Explanation
Subsection 4.155 (.02) General Standards		
B. All spaces accessible and usable for parking	☒	Standard parking lot design.
J. Sturdy bumper guards of at least 6 inches to prevent parked vehicles crossing property line or interfering with screening or sidewalks.	☒	The parking lot will be surrounded by a six-inch curb.
K. Surfaced with asphalt, concrete or other approved material.	☒	The parking lot will be surfaced with asphalt.
Drainage meeting City standards	☒	Drainage is professionally designed and being reviewed to meet City standards.
L. Lighting won't shine into adjoining structures or into the eyes of passersby.	☒	Lighting is proposed to be fully shielded and subject to the City's Outdoor Lighting Ordinance.
N. No more than 40% of parking compact spaces.	☒	18 compact parking spaces are proposed (approximately 4% of spaces)
Subsection 4.155 (.03) Minimum and Maximum Off-Street Parking Requirements		
A. Access and maneuvering areas adequate.	☒	Access to the area is available to employees. Maneuvering area is plentiful.
A.1. Loading and delivery areas and circulation separate from customer/employee parking and pedestrian areas.	☒	Loading areas are generally separated from parking and pedestrian area, with the exception of two loading areas at the rear of the building. These parking areas are not adjacent to pedestrian areas or the main building entryway.
Circulation patterns clearly marked.	☒	Circulation patterns are clearly evident by the standard width of the drive aisles, which are equivalent to a local street without pavement markings, and the clear delineation of the edge of the drive aisles by painted parking stalls, landscape areas, and pedestrian walkways.
A.2. To the greatest extent possible, vehicle and pedestrian traffic separated.	☒	Vehicle and pedestrian traffic is clearly delineated and separated.

C. Safe and Convenient Access, meet ADA and ODOT Standards. For parking areas with more than 10 spaces, 1 ADA space for every 50 spaces.	☒	The proposed parking and access allow ADA and ODOT standards to be met. The applicant proposes 402 parking spaces, nine of which are ADA accessible spaces.
D. Efficient on-site parking and circulation.	☒	The proximity to the destination and pedestrian connections make the new parking area efficient. Adequate maneuvering area is provided making the circulation efficient.

Other Parking Standards and Policies and Procedures

Parking Variances and Waivers
Subsection 4.155 (.02) A. 1.-2.

A32. **Criteria:** "1. The Board shall have the authority to grant variances or planned development waivers to these standards in keeping with the purposes and objectives set forth in the Comprehensive Plan and this Code. 2. Waivers to the parking, loading, or bicycle parking standards shall only be issued upon a findings that the resulting development will have no significant adverse impact on the surrounding neighborhood, and the community, and that the development considered as a whole meets the purposes of this section."
Response: The applicant has not requested variances or waivers pursuant to this subsection.

Multiple Use Parking Calculations
Subsection 4.155 (.02) D.

A33. **Criterion:** "In the event several uses occupy a single structure or parcel of land, the total requirement for off-street parking shall be the sum of the requirements of the several uses computed separately, except as modified by subsection "E," below."
Response: As shown in Finding A30, each proposed use was factored in to the overall calculation of the required number of parking spaces.

Shared Parking
Subsection 4.155 (.02) E.

A34. **Criterion:** "Owners of two (2) or more uses, structures, or parcels of land may utilize jointly the same parking area when the peak hours of operation do not overlap, provided satisfactory legal evidence is presented in the form of deeds, leases, or contracts securing full and permanent access to such parking areas for all the parties jointly using them. "
Response: No shared parking with adjacent uses is proposed.

Off-Site Parking Allowance
Subsection 4.155 (.02) G.

A35. **Criterion:** "Off-Site Parking. Except for single-family dwellings, the vehicle parking spaces required by this Chapter may be located on another parcel of land, provided the parcel is within 500 feet of the use it serves and the DRB has approved the off-site parking through the Land Use Review. The distance from the parking area to the use shall be measured from the nearest parking space to the main building entrance, following a sidewalk or other pedestrian route. The right to use the off-site parking must be evidenced in the form of recorded deeds, easements, leases, or contracts securing full and permanent access to such parking areas for all the parties jointly using them."
Response: No off-site parking was used for calculating the parking spaces provided.

Non-Parking Use of Parking Areas
Subsection 4.155 (.02) H.

A36. **Criterion:** "The conducting of any business activity shall not be permitted on the required parking spaces, unless a temporary use permit is approved pursuant to Section 4.163."
Response: All parking areas are expected to be maintained and kept clear for parking unless a temporary use permit is granted or the Stage II approval is revised. Particularly no container or other storage is permitted in the parking areas.

Parking for Uses Not Listed
Subsection 4.155 (.02) M.

A37. **Criterion:** "Off-street parking requirements for types of uses and structures not specifically listed in this Code shall be determined by the Development Review Board if an application is pending before the Board. Otherwise, the requirements shall be specified by the Planning Director, based upon consideration of comparable uses."
Response: The parking calculation is based on the listed uses of office or flex space and manufacturing establishment.

On-Street Parking for Parking Calculations
Subsection 4.155 (.03) F.

A38. **Criterion:** "On-street parking spaces, directly adjoining the frontage of and on the same side of the street as the subject property, may be counted towards meeting the minimum off-street parking standards."
Response: The parking calculations do not include any on-street parking.

Electrical Vehicle Charging Stations
Subsection 4.155 (.03) H.

A39. **Criteria:** "1. Parking spaces designed to accommodate and provide one or more electric vehicle charging stations on site may be counted towards meeting the minimum off-street parking standards. 2. Modification of existing parking spaces to accommodate electric vehicle charging stations on site is allowed outright."

Response: The applicant proposes nine electrical charging stations, two of which are carpool spaces.

Substituting Motorcycle Parking for Vehicle Parking
Subsection 4.155 (.03) I.

A40. **Criteria:** "Motorcycle parking may substitute for up to 5 spaces or 5 percent of required automobile parking, whichever is less. For every 4 motorcycle parking spaces provided, the automobile parking requirement is reduced by one space."
Response: The applicant proposes two motorcycle parking stalls.

Carpool and Vanpool Parking Requirements
Subsection 4.155 (.06)

A41. **Criteria:** This subsection lists the requirements for carpool and vanpool parking.
Response: The applicant proposes 20 carpool/vanpool parking spots, meeting the standard of five percent of provided parking spaces on site. These spaces are located closest to the main building entryway, with the exception of required ADA parking.

Parking Area Landscaping

Minimizing Visual Dominance of Parking
Subsection 4.155 (.03) B.

A42. **Criteria:** "Parking and loading or delivery areas shall be landscaped to minimize the visual dominance of the parking or loading area, as follows:"
Response: The proposed landscaping shields the parking area from off-site view. The applicant provides the required parking lot trees.

Landscape Screening of Parking
Subsection 4.155 (.03) B. 1.

A43. **Criterion:** "Landscaping of at least ten percent (10%) of the parking area designed to be screened from view from the public right-of-way and adjacent properties. This landscaping shall be considered to be part of the fifteen percent (15%) total landscaping required in Section 4.176.03 for the site development."
Response: The new parking area is surrounded by landscaping far surpassing the 10% minimum. As shown on Sheet L1.0 of Exhibit B2, continuous screening of waxleaf privet or inkberry is proposed along the Boeckman Road frontage.

Parking Area Tree Requirement
Subsection 4.155 (.03) B. 2. and 2. a.

A44. **Criteria:** "Landscape tree planting areas shall be minimum of eight (8) feet in width and length and spaced every (8) parking spaces or an equivalent aggregated amount. a. Trees shall be planted in a ratio of one (1) tree per eight (8) parking spaces or fraction thereof,

except in parking areas of more than two hundred (200) spaces where a ratio of one (1) tree per six (6) spaces shall be applied as noted in subsection (.03)(B.)(3.)"

Response: All tree planting areas meet or exceed the 8 foot minimum width and length. The proposed parking area exceeds 200 spaces. Trees will be planted along outer edges of the drive aisles and within tree planting areas. A number of existing mature trees are located along the southern portion of the new parking area and will provide shade to that portion of the lot.

Parking Area Tree Clearance
Subsection 4.155 (.03) B. 2. b.

A45. **Criterion:** "Except for trees planted for screening, all deciduous interior parking lot trees must be suitably sized, located, and maintained to provide a branching minimum of seven (7) feet clearance at maturity."

Response: All trees required for planting in the parking area will be varieties that could typically be maintained to provide a seven-foot clearance.

Other Development Standards

Access, Ingress, and Egress
Section 4.167

A46. **Criterion:** "Each access onto streets or private drives shall be at defined points as approved by the City and shall be consistent with the public's health, safety and general welfare. Such defined points of access shall be approved at the time of issuance of a building permit if not previously determined in the development permit."

Response: Existing access points at Boeckman Road will be retained. With the reclassification of Boeckman Road to a minor arterial in the 2013 Transportation System Plan these driveways no longer comply with access spacing requirements of 1,000 feet preferred and 600 feet minimum for minor arterials. However, the driveways align with existing driveways on the north side of the road and a waiver to access spacing standards is allowed as noted in Condition of Approval PF2. No site access shall be taken to or from Kinsman Road as noted in Condition of Approval PF 3.

Double-Frontage Lots
Section 4.169

A47. **Criterion:** "Buildings on double frontage lots (i.e., through lots) and corner lots must meet the front yard setback for principal buildings on both streets or tracts with a private drive."

Response: The subject property is a double frontage lot, and required building setbacks will continue to be met.

Natural Features and Other Resources
Section 4.171

A48. **Criteria:** This section provides for the protection of a number of natural features and other resources including: general terrain preparation, hillsides, trees and wooded areas, high voltage powerline easements and rights of way and petroleum pipeline easements, earth movement hazard areas, soil hazard areas, historic resources, and cultural resources.
Response: The western portion of the property contains some mature tree stands and SROZ which would not be disturbed by the proposed parking lot. The location of the proposed parking lot expansion slopes gently to the west, and some minor grading will be performed to level the site. Trees have been considered as part of site planning and a number of trees are being retained within the existing parking area. No other hillsides, powerline easements, etc. needing protection exist on the site.

Public Safety and Crime Prevention

Design for Public Safety
Subsection 4.175 (.01)

A49. **Criterion:** "All developments shall be designed to deter crime and insure public safety."
Response: The applicant has not provided any summary findings in response to these criteria. Staff finds no evidence and has not received any testimony that the design of the site and buildings would lead to crime or negatively impact public safety.

Surveillance and Access
Subsection 4.175 (.03)

A50. **Criterion:** "Areas vulnerable to crime shall be designed to allow surveillance. Parking and loading areas shall be designed for access by police in the course of routine patrol duties."
Response: The parking and loading areas are easily accessible and no areas of particular vulnerability to crime have been identified warranting additional surveillance.

Lighting to Discourage Crime
Subsection 4.175 (.04)

A51. **Criterion:** "Exterior lighting shall be designed and oriented to discourage crime."
Response: Lighting has been designed in accordance with the City's outdoor lighting standards, which will provide sufficient lighting to discourage crime.

Landscaping Standards

Landscaping Standards Purpose
Subsection 4.176 (.01)

A52. **Criteria:** "This Section consists of landscaping and screening standards and regulations for use throughout the City. The regulations address materials, placement, layout, and timing

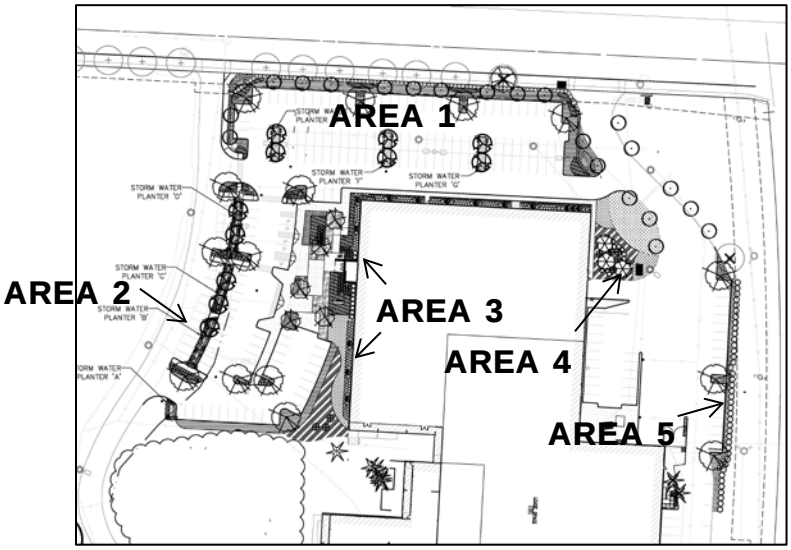
of installation. The City recognizes the ecological and economic value of landscaping and requires the use of landscaping and other screening or buffering to:" Listed A. through K.
Response: In complying with the various landscape standards in Section 4.176 the applicant has demonstrated the Stage II Final Plan is in compliance with the landscape purpose statement.

Landscape Code Compliance
Subsection 4.176 (.02) B.

A53. **Criterion:** "All landscaping and screening required by this Code must comply with all of the provisions of this Section, unless specifically waived or granted a Variance as otherwise provided in the Code. The landscaping standards are minimum requirements; higher standards can be substituted as long as fence and vegetation-height limitations are met. Where the standards set a minimum based on square footage or linear footage, they shall be interpreted as applying to each complete or partial increment of area or length"
Response: No waivers or variances to landscape standards have been requested. Thus all landscaping and screening must comply with standards of this section.

Intent and Required Materials
Subsections 4.176 (.02) C. through I.

A54. **Criteria:** These subsections identify the various landscaping standards, including the intent of where they should be applied, and the required materials.
Response: As shown on sheet L1.0 of Exhibit B2 required materials for each landscaping standard is provided as follows. Throughout the site, appropriate groundcover is provided for areas without not otherwise occupied by shrubs and trees. In several areas, an option between Marshall Seedless Ash and Village Green Zelkova is indicated. Marshall Seedless Ash should not be utilized in the landscape plan, due to potential susceptibility of the Emerald Ash Borer. Condition of Approval PDA 3 ensures that this tree will not be utilized in the landscape plan.



Landscape Area 1

Area Description: Along north side of parking lot
Landscaping Standard: Low Screen
Comments on Intent: Screens parking lot from sidewalk and street right-of-way
Required Materials: 3-foot hedge 95 percent opaque year round, trees every 30 feet or as required to provide canopy over landscape area.
Materials Provided: Waxleaf Privet or Inkberry create the low screen. Tree canopy is provided by 4 Marshall Seedless Ash or Village Green Zelkova and 13 Karpick Red Maple or Columnar Tulip Trees.

Landscape Area 2

Area Description: Along west side of parking lot
Landscaping Standard: General
Comments on Intent: No screening required, area consists of stormwater planters
Required Materials: Fully cover, less than 30 feet deep, tree every 30 feet (may be grouped), 30 feet or deeper, one tree every 800 sf and 3 shrubs every 400 sf.
Materials Provided: Adequate shrubs and groundcover, trees include 4 Marshall Seedless Ash or Village Green Zelkova and 5 Black Tupelo.

Landscape Area 3

Area Description: Adjacent to building and entryway
Landscaping Standard: General
Comments on Intent: No screening required
Required Materials: Fully cover, less than 30 feet deep, tree every 30 feet (may be grouped), 30 feet or deeper, one tree every 800 sf and 3 shrubs every 400 sf.
Materials Provided: Adequate shrubs and groundcover, trees include 5 Eastern Redbud or River Birch.

Landscape Area 4

Area Description: East side of building
Landscaping Standard: General
Comments on Intent: No screening required
Required Materials: Fully cover, less than 30 feet deep, tree every 30 feet (may be grouped), 30 feet or deeper, one tree every 800 sf and 3 shrubs every 400 sf.
Materials Provided: Adequate shrubs and groundcover, trees include 3 Ponderosa Pine or Western Red Cedar and 3 Karpick Red Maple or Columnar Tulip Trees.

Landscape Area 5

Area Description: Along east side of property
Landscaping Standard: High Screen
Comments on Intent: Screen trash container from adjacent property
Required Materials: 6-foot hedge 95 percent opaque year round, trees every 30 feet

or as required to provide canopy over landscape area.

Materials Provided: Dwarf Strawberry Trees or Pacific Wax Myrtle create the low screen. Tree canopy is provided by 3 Marshall Seedless Ash or Village Green Zelkova.

Landscape Area and Locations
Subsection 4.176 (.03)

A55. **Criteria:** "Not less than fifteen percent (15%) of the total lot area, shall be landscaped with vegetative plant materials. The ten percent (10%) parking area landscaping required by section 4.155.03(B)(1) is included in the fifteen percent (15%) total lot landscaping requirement. Landscaping shall be located in at least three separate and distinct areas of the lot, one of which must be in the contiguous frontage area. Planting areas shall be encouraged adjacent to structures. Landscaping shall be used to define, soften or screen the appearance of buildings and off-street parking areas. Materials to be installed shall achieve a balance between various plant forms, textures, and heights. The installation of native plant materials shall be used whenever practicable."

Response: The percent of landscaping continues to be exceeded and dispersed around the DWFritz property.

Buffering and Screening
Subsection 4.176 (.04)

A56. **Criteria:** "Additional to the standards of this subsection, the requirements of the Section 4.137.5 (Screening and Buffering Overlay Zone) shall also be applied, where applicable.

A. All intensive or higher density developments shall be screened and buffered from less intense or lower density developments.

B. Activity areas on commercial and industrial sites shall be buffered and screened from adjacent residential areas. Multi-family developments shall be screened and buffered from single-family areas.

C. All exterior, roof and ground mounted, mechanical and utility equipment shall be screened from ground level off-site view from adjacent streets or properties.

D. All outdoor storage areas shall be screened from public view, unless visible storage has been approved for the site by the Development Review Board or Planning Director acting on a development permit.

E. In all cases other than for industrial uses in industrial zones, landscaping shall be designed to screen loading areas and docks, and truck parking.

F. In any zone any fence over six (6) feet high measured from soil surface at the outside of fenceline shall require Development Review Board approval."

Response: The high screen standard is being applied to screen the proposed trash container on the east side of the building from off-site view.

Landscape Plans
Subsection 4.176 (.09)

A57. **Criteria:** "Landscape plans shall be submitted showing all existing and proposed landscape areas. Plans must be drawn to scale and show the type, installation size, number and placement of materials. Plans shall include a plant material list. Plants are to be identified by both their scientific and common names. The condition of any existing plants and the proposed method of irrigation are also to be indicated."
Response: Applicant's sheet L1.0 provides the required information.

Other Development Standards

Access Drives and Travel Lanes
Subsection 4.177 (.01) E.

A58. **Criteria:** This subsection sets standards for access drives and travel lanes.
Response:

- All access drives are designed to provide a clear travel lane, free from obstructions.
- All travel lanes will be asphalt. Condition of Approval PDA 2 will ensure they are capable of carrying a 23-ton load.
- Emergency access lanes are improved to a minimum of 12 feet and the development is being reviewed and approved by the Fire District.

Mixed Solid Waste and Recyclables Storage
Section 4.179

A59. **Criteria:** This section establishes standards for mixed solid waste and recyclables storage in new multi-family residential and non-residential buildings.
Response: The required mixed solid waste and recyclables storage area is 886 square feet. Two new mixed solid waste and recyclables enclosures are proposed along with a trash container on the east side of the building, resulting in 988 square feet of storage area. Development of these storage areas has been coordinated with the City's franchised garbage hauler, Republic Services, as shown in Exhibit B1.

Outdoor Lighting
Sections 4.199.20 through 4.199.60

A60. **Criteria:** This section states that the outdoor lighting ordinance is applicable to "Installation of new exterior lighting systems in public facility, commercial, industrial and multi-family housing projects with common areas" and "Major additions or modifications (as defined in this Section) to existing exterior lighting systems in public facility, commercial, industrial and multi-family housing projects with common areas." In addition the exempt luminaires and lighting systems are listed.
Response: The proposal is required to meet the Outdoor Lighting Standards. See Request B, Findings B28 through B36.

Underground Installation
Sections 4.300-4.320

A61. **Criteria:** These sections list requirements regarding the underground installation of utilities.

Response: All utility lines will be underground.

Request B: DB17-0009 Site Design Review

As described in the Findings below, the applicable criteria for this request are met or will be met by Conditions of Approval.

Site Design Review

Excessive Uniformity, Inappropriateness Design
Subsection 4.400 (.01) and Subsection 4.421 (.03)

B1. **Criteria:** "The Board shall also be guided by the purpose of Section 4.400, and such objectives shall serve as additional criteria and standards." "Excessive uniformity, inappropriateness or poor design of the exterior appearance of structures and signs and the lack of proper attention to site development and landscaping in the business, commercial, industrial and certain residential areas of the City hinders the harmonious development of the City, impairs the desirability of residence, investment or occupation in the City, limits the opportunity to attain the optimum use in value and improvements, adversely affects the stability and value of property, produces degeneration of property in such areas and with attendant deterioration of conditions affecting the peace, health and welfare, and destroys a proper relationship between the taxable value of property and the cost of municipal services therefor."

Response: Staff summarizes the compliance with this subsection as follows:

Excessive Uniformity: The proposed site modifications are unique to the particular development context and do not create excessive uniformity.

Inappropriate or Poor Design of the Exterior Appearance of Structures: The existing building is designed in a manner that is consistent with newer industrial development in the PDI zone. Additional screening for the proposed trash enclosures is consistent with the existing building design.

Inappropriate or Poor Design of Signs: Review of new signs will occur in a subsequent development permit application.

Lack of Proper Attention to Site Development: The appropriate professional services have been used to design the site, demonstrating appropriate attention being given to site development.

Lack of Proper Attention to Landscaping: Landscaping is provided exceeding the area requirements, has been professionally designed by a landscape designer, and includes a variety of plant materials, all demonstrating appropriate attention being given to landscaping.

Purposes and Objectives
Subsection 4.400 (.02) and Subsection 4.421 (.03)

B2. **Criteria:** "The Board shall also be guided by the purpose of Section 4.400, and such objectives shall serve as additional criteria and standards." "The City Council declares that the purposes and objectives of site development requirements and the site design review procedure are to:" Listed A through J.

Response: The applicant has demonstrated compliance with the listed purposes and objectives. In short, the proposal provides a practical parking lot design and associated site modifications appropriate for the building modifications currently underway.

Development Review Board Jurisdiction
Section 4.420

B3. **Criteria:** The section states the jurisdiction and power of the Development Review Board in relation to site design review including the application of the section, that development is required in accord with plans, and variance information.

Response: Condition of Approval PDB 1 has been included to ensure construction, site development, and landscaping are carried out in substantial accord with the Development Review Board approved plans, drawings, sketches, and other documents. No building permits will be granted prior to development review board approval. No variances are requested from site development requirements.

Design Standards
Subsection 4.421 (.01)

B4. **Criteria:** "The following standards shall be utilized by the Board in reviewing the plans, drawings, sketches and other documents required for Site Design Review. These standards are intended to provide a frame of reference for the applicant in the development of site and building plans as well as a method of review for the Board. These standards shall not be regarded as inflexible requirements. They are not intended to discourage creativity, invention and innovation. The specifications of one or more particular architectural styles is not included in these standards." Listed A through G.

Response: The applicant has provided sufficient information demonstrating compliance with the standards of this subsection as follows:

- Pursuant to standard A (Preservation of Landscape), the site modifications will generally occur in an area with gentle slopes and minimal vegetation. The proposed parking lot expansion will be enhanced by landscaping consistent with other industrial properties in Wilsonville.
- Pursuant to standard B (Relation of Proposed Buildings to Environment), the proposed ramp and trash enclosures are located within portions of the site that are already developed, minimizing impacts to naturally sensitive areas. The portion of the site where the parking lot would be developed does not have extensive topographical change or other naturally sensitive areas.
- Pursuant to standard C (Drives, Parking, and Circulation), no new driveways are

proposed in this application. The parking area is accessed via the existing driveway. Safe and accessible routes are provided throughout the site with a parking lot in front of the existing building and a pedestrian walkway from the parking to the front door of the new building.

- Pursuant to standard D (Surface Water Drainage), no adverse impacts to surface water drainage will result from the proposal.
- Pursuant to standard E (Utility Service), no above ground utility installations are proposed. Stormwater and sanitary sewage disposal facilities are indicated on the applicant's grading plan, shown in Exhibit B2.
- Pursuant to standard F (Advertising Features), the applicant has indicated that review of signs will occur under a separate development permit application.
- Pursuant to standard G (Special Features), there are no exposed storage areas except for the truck loading areas and the exterior trash container on the east side of the building. The proposed trash container and storage areas will be screened from the property to the east with landscaping.

Applicability of Design Standards
Subsection 4.421 (.02)

B5. **Criterion:** "The standards of review outlined in Sections (a) through (g) above shall also apply to all accessory buildings, structures, exterior signs and other site features, however related to the major buildings or structures."
Response: Design standards have been applied to the structures and site features.

Conditions of Approval
Subsection 4.421 (.05)

B6. **Criterion:** "The Board may attach certain development or use conditions in granting an approval that are determined necessary to insure the proper and efficient functioning of the development, consistent with the intent of the Comprehensive Plan, allowed densities and the requirements of this Code."
Response: No additional conditions of approval are recommended to ensure the proper and efficient functioning of the development.

Color or Materials Requirements
Subsection 4.421 (.06)

B7. **Criterion:** "The Board or Planning Director may require that certain paints or colors of materials be used in approving applications. Such requirements shall only be applied when site development or other land use applications are being reviewed by the City."
Response: No specific paints or colors are being required.

Design of Trash and Recycling Enclosures
Section 4.430

B8. **Criteria:** "The following locations, design and access standards for mixed solid waste and recycling storage areas shall be applicable to the requirements of Section 4.179 of the Wilsonville City Code." Listed (.02) A. through (.04) C.
Response: Sheets A1.3 and A1.4 of Exhibit B2 show enclosures meeting all the standards listed in this Section. The enclosures have also been approved by the franchise solid waste hauler. See Finding A59.

Submission Requirements
Section 4.440

B9. **Criteria:** "A prospective applicant for a building or other permit who is subject to site design review shall submit to the Planning Department, in addition to the requirements of Section 4.035, the following:" Listed A through F.
Response: The applicant has submitted the required additional materials, as applicable.

Time Limit on Approval
Section 4.442

B10. **Criterion:** "Site design review approval shall be void after two (2) years unless a building permit has been issued and substantial development pursuant thereto has taken place; or an extension is granted by motion of the Board.
Response: The Applicant has indicated that they will pursue development within two (2) years and it is understood that the approval will expire after 2 years if a building permit hasn't been issued unless an extension has been granted by the board.

Landscape Installation or Bonding
Subsection 4.450 (.01)

B11. **Criterion:** "All landscaping required by this section and approved by the Board shall be installed prior to issuance of occupancy permits, unless security equal to one hundred and ten percent (110%) of the cost of the landscaping as determined by the Planning Director is filed with the City assuring such installation within six (6) months of occupancy. "Security" is cash, certified check, time certificates of deposit, assignment of a savings account or such other assurance of completion as shall meet with the approval of the City Attorney. In such cases the developer shall also provide written authorization, to the satisfaction of the City Attorney, for the City or its designees to enter the property and complete the landscaping as approved. If the installation of the landscaping is not completed within the six-month period, or within an extension of time authorized by the Board, the security may be used by the City to complete the installation. Upon completion of the installation, any portion of the remaining security deposited with the City shall be returned to the applicant."
Response: Condition of Approval PDB 2 will assure installation or appropriate security.

Approved Landscape Plan
Subsection 4.450 (.02)

B12. **Criterion:** "Action by the City approving a proposed landscape plan shall be binding upon the applicant. Substitution of plant materials, irrigation systems, or other aspects of an approved landscape plan shall not be made without official action of the Planning Director or Development Review Board, as specified in this Code."

Response: Condition of Approval PDB 3 shall provide ongoing assurance this criterion is met.

Landscape Maintenance and Watering
Subsection 4.450 (.03)

B13. **Criterion:** "All landscaping shall be continually maintained, including necessary watering, weeding, pruning, and replacing, in a substantially similar manner as originally approved by the Board, unless altered with Board approval."

Response: Condition of Approval PDB 4 will ensure landscaping is continually maintained in accordance with this subsection.

Modifications of Landscaping
Subsection 4.450 (.04)

B14. **Criterion:** "If a property owner wishes to add landscaping for an existing development, in an effort to beautify the property, the Landscape Standards set forth in Section 4.176 shall not apply and no Plan approval or permit shall be required. If the owner wishes to modify or remove landscaping that has been accepted or approved through the City's development review process, that removal or modification must first be approved through the procedures of Section 4.010."

Response: Condition of Approval PDB 4 shall provide ongoing assurance that this criterion is met by preventing modification or removal without the appropriate City review.

Natural Features and Other Resources

Protection
Section 4.171

B15. **Criterion:** This section provides for the protection of a number of natural features and other resources including: general terrain preparation, hillsides, trees and wooded areas, high voltage powerline easements and rights of way and petroleum pipeline easements, earth movement hazard areas, soil hazard areas, historic resources, and cultural resources.

Response: The proposed design of the site provides for protection of natural features and other resources consistent with the proposed Stage II Final Plan for the site as well as the purpose and objectives of site design review. See Finding A48 under Request A.

Landscaping

Landscape Standards Code Compliance
Subsection 4.176 (.02) B.

B16. **Criterion:** "All landscaping and screening required by this Code must comply with all of the provisions of this Section, unless specifically waived or granted a Variance as otherwise provided in the Code. The landscaping standards are minimum requirements; higher standards can be substituted as long as fence and vegetation-height limitations are met. Where the standards set a minimum based on square footage or linear footage, they shall be interpreted as applying to each complete or partial increment of area or length"
Response: No waivers or variances to landscape standards have been requested. Thus all landscaping and screening must comply with standards of this section.

Intent and Required Materials
Subsections 4.176 (.02) C. through I.

B17. **Criteria:** These subsections identify the various landscaping standards, including the intent of where they should be applied, and the required materials.
Response: The minimum or higher standard has been applied throughout different landscape areas of the site and landscape materials are proposed to meet each standard in the different areas. Site Design Review is being reviewed concurrently with the Stage II Final Plan which includes a thorough analysis of the functional application of the landscaping standards. See Finding A54 under Request A.

Landscape Area and Locations
Subsection 4.176 (.03)

B18. **Criteria:** "Not less than fifteen percent (15%) of the total lot area, shall be landscaped with vegetative plant materials. The ten percent (10%) parking area landscaping required by section 4.155.03(B)(1) is included in the fifteen percent (15%) total lot landscaping requirement. Landscaping shall be located in at least three separate and distinct areas of the lot, one of which must be in the contiguous frontage area. Planting areas shall be encouraged adjacent to structures. Landscaping shall be used to define, soften or screen the appearance of buildings and off-street parking areas. Materials to be installed shall achieve a balance between various plant forms, textures, and heights. The installation of native plant materials shall be used whenever practicable."
Response: Consistent with the proposed revised Stage II Final Plan revision for the site, the landscape minimum continues to be exceeded and landscaping is in a wide variety of areas.

Buffering and Screening
Subsection 4.176 (.04)

B19. **Criteria:** "Additional to the standards of this subsection, the requirements of the Section 4.137.5 (Screening and Buffering Overlay Zone) shall also be applied, where applicable.

A. All intensive or higher density developments shall be screened and buffered from less intense or lower density developments.

B. Activity areas on commercial and industrial sites shall be buffered and screened from adjacent residential areas. Multi-family developments shall be screened and buffered from single-family areas.

C. All exterior, roof and ground mounted, mechanical and utility equipment shall be screened from ground level off-site view from adjacent streets or properties.

D. All outdoor storage areas shall be screened from public view, unless visible storage has been approved for the site by the Development Review Board or Planning Director acting on a development permit.

E. In all cases other than for industrial uses in industrial zones, landscaping shall be designed to screen loading areas and docks, and truck parking.

F. In any zone any fence over six (6) feet high measured from soil surface at the outside of fenceline shall require Development Review Board approval."

Response: Consistent with the proposed Stage II Final Plan, adequate screening is proposed. See Finding A56 under Request A.

Shrubs and Groundcover Materials
Subsection 4.176 (.06) A.

B20. **Criteria:** This subsection establishes plant material and planting requirements for shrubs and ground cover.

Response: Condition of Approval PDB 5 requires that the detailed requirements of this subsection are met.

Plant Materials-Trees
Subsection 4.176 (.06) B.

B21. **Criteria:** This subsection establishes plant material requirements for trees.

Response: The plants material requirements for trees will be met as follows:

- Condition of Approval PDB 6 requires all trees to be B&B (Balled and Burlapped).
- The condition of approval requires all plant materials to conform in size and grade to "American Standard for Nursery Stock" current edition."
- The applicant's planting plan lists tree sizes meeting requirements.

Types of Plant Species
Subsection 4.176 (.06) E.

B22. **Criteria:** This subsection discusses use of existing landscaping or native vegetation, selection of plant materials, and prohibited plant materials.

Response: The applicant has provided sufficient information in their landscape plan (sheet L1.0) showing the proposed landscape design meets the standards of this subsection.

Tree Credit
Subsection 4.176 (.06) F.

B23. **Criteria:** "Existing trees that are in good health as certified by an arborist and are not disturbed during construction may count for landscaping tree credit as follows: Existing trunk diameter Number of Tree Credits

18 to 24 inches in diameter	3 tree credits
25 to 31 inches in diameter	4 tree credits
32 inches or greater	5 tree credits:"

Maintenance requirements listed 1. through 2.

Response: The applicant is not requesting any of preserved trees be counted as tree credits pursuant to this subsection.

Exceeding Plant Standards
Subsection 4.176 (.06) G.

B24. **Criterion:** "Landscape materials that exceed the minimum standards of this Section are encouraged, provided that height and vision clearance requirements are met."

Response: The selected landscape materials do not violate any height or vision clearance requirements.

Landscape Installation and Maintenance
Subsection 4.176 (.07)

B25. **Criteria:** This subsection establishes installation and maintenance standards for landscaping.

Response: The installation and maintenance standards are or will be met as follows:

- Plant materials are required to be installed to current industry standards and be properly staked to ensure survival.
- Plants that die are required to be replaced in kind, within one growing season, unless appropriate substitute species are approved by the City.
- Notes on the applicant's sheet L2.0 provides for an irrigation system.

Landscape Plans
Subsection 4.176 (.09)

B26. **Criterion:** "Landscape plans shall be submitted showing all existing and proposed landscape areas. Plans must be drawn to scale and show the type, installation size, number and placement of materials. Plans shall include a plant material list. Plants are to be identified by both their scientific and common names. The condition of any existing plants and the proposed method of irrigation are also to be indicated."

Response: Applicant's sheets L1.0 and L2.0 in Exhibit B2 provide the required information.

Completion of Landscaping
Subsection 4.176 (.10)

B27. **Criterion:** "The installation of plant materials may be deferred for a period of time specified by the Board or Planning Director acting on an application, in order to avoid hot summer or cold winter periods, or in response to water shortages. In these cases, a temporary permit shall be issued, following the same procedures specified in subsection (.07)(C)(3), above, regarding temporary irrigation systems. No final Certificate of Occupancy shall be granted until an adequate bond or other security is posted for the completion of the landscaping, and the City is given written authorization to enter the property and install the required landscaping, in the event that the required landscaping has not been installed. The form of such written authorization shall be submitted to the City Attorney for review."

Response: The applicant has not requested to defer installation of plant materials.

Outdoor Lighting

Applicability
Sections 4.199.20 and 4.199.60

B28. **Criteria:** Section 4.199.20 states that the outdoor lighting ordinance is applicable to "Installation of new exterior lighting systems in public facility, commercial, industrial and multi-family housing projects with common areas" and "Major additions or modifications (as defined in this Section) to existing exterior lighting systems in public facility, commercial, industrial and multi-family housing projects with common areas." In addition the exempt luminaires and lighting systems are listed. Section 4.199.60 identifies the threshold for major additions.

Response: A new exterior lighting system is being installed for an existing development. The Outdoor Lighting standards are thus applicable.

Outdoor Lighting Zones
Section 4.199.30

B29. **Criterion:** "The designated Lighting Zone as indicated on the Lighting Overlay Zone Map for a commercial, industrial, multi-family or public facility parcel or project shall determine the limitations for lighting systems and fixtures as specified in this Ordinance."

Response: The project site is within LZ 2 and the proposed outdoor lighting systems will be reviewed under the standards of this lighting zone.

Optional Lighting Compliance Methods
Subsection 4.199.40 (.01) A.

B30. **Criteria:** "All outdoor lighting shall comply with either the Prescriptive Option or the Performance Option below.

Response: The applicant has elected to comply with the Prescriptive Option.

Wattage and Shielding
Subsection 4.199.40 (.01) B. 1.

B31. **Criteria:** "The maximum luminaire lamp wattage and shielding shall comply with Table 7."

Table 7: Maximum Wattage And Required Shielding				
Lighting Zone	**Fully Shielded**	**Shielded**	**Partly Shielded**	**Unshielded**
LZ 2	100	35	39	Low voltage landscape lighting 50 watts or less

Response: Condition of Approval PDD 8 will ensure that the requirements of the Outdoor Lighting Ordinance are met at the time of building permit issuance.

Compliance with Oregon Energy Efficiency Specialty Code
Subsection 4.199.40 (.01) B. 2.

B32. **Criterion:** "Except for those exemptions listed in Section 4.199.20(.02), the exterior lighting for the site shall comply with the Oregon Energy Efficiency Specialty Code, Exterior Lighting.

Response: The applicant is complying with the Oregon Energy Efficiency Specialty Code.

Mounting Height
Subsection 4.199.40 (.01) B. 3.

B33. **Criteria:** "The maximum pole or mounting height shall comply with Table 8."

Table 8: Maximum Lighting Mounting Height In Feet			
Lighting Zone	**Lighting for private drives, driveways, parking, bus stops and other transit facilities**	**Lighting for walkways, bikeways, plazas and other pedestrian areas**	**All other lighting**
LZ 2	40	18	8

Response: All exterior lighting is less than 40 feet high as shown on the Lighting Plan in Exhibit B2.

Luminaire Setback
Subsection 4.199.40 (.01) B. 4.

B34. **Criteria:** "Each luminaire shall be set back from all property lines at least 3 times the mounting height of the luminaire:

Exception 1: If the subject property abuts a property with the same base and lighting zone, no setback from the common lot lines is required.

Exception 2: If the subject property abuts a property which is zoned (base and lighting) other than the subject parcel, the luminaire shall be setback three times the mounting height of the luminaire, measured from the abutting parcel's setback line. (Any variance or waiver to the abutting property's setback shall not be considered in the distance calculation).

Exception 3: If the luminaire is used for the purpose of street, parking lot or public utility easement illumination and is located less than 3 mounting heights from the property line, the luminaire shall include a house side shield to protect adjoining property.

Exception 4: If the subject property includes an exterior column, wall or abutment within 25 feet of the property line, a luminaire partly shielded or better and not exceeding 60 lamp watts may be mounted onto the exterior column, wall or abutment or under or within an overhang or canopy attached thereto.

Exception 5: Lighting adjacent to SROZ areas shall be set back 3 times the mounting height of the luminaire, or shall employ a house side shield to protect the natural resource area."

Response: The subject property is bordered by the same base zoning and the same lighting zone on all sides. SROZ areas exist along the western portion of the property, necessitating greater setback distances or a house side shield. Condition of Approval PDD 8 will ensure that the requirements of the Outdoor Lighting Ordinance are met at the time of building permit issuance

Lighting Curfew
Subsection 4.199.40 (.02) D.

B35. **Criteria:** "All prescriptive or performance based exterior lighting systems shall be controlled by automatic device(s) or system(s) that:

1. Initiate operation at dusk and either extinguish lighting one hour after close or at the curfew times according to Table 10; or
2. Reduce lighting intensity one hour after close or at the curfew time to not more than 50% of the requirements set forth in the Oregon Energy Efficiency Specialty Code unless waived by the DRB due to special circumstances; and
3. Extinguish or reduce lighting consistent with 1. and 2. above on Holidays.

The following are exceptions to curfew:

a. Exception 1: Building Code required lighting.
b. Exception 2: Lighting for pedestrian ramps, steps and stairs.
c. Exception 3: Businesses that operate continuously or periodically after curfew."

In Table 10 the Lighting Curfew for LZ 2 is 10 p.m.

Response: The applicant proposes to dim or turn off outdoor lighting by 10 p.m.

Standards and Submittal Requirements
Sections 4.199.40 and 4.199.50

B36. **Criteria:** These sections identify the Outdoor Lighting Standards for Approval and Submittal Requirements.

Response: All required materials have been submitted.

Request C: DB15-0044 Type C Tree Removal Plan

Type C Tree Removal-General

Tree Related Site Access
Subsection 4.600.50 (.03) A.

C1. **Criterion:** "By submission of an application, the applicant shall be deemed to have authorized City representatives to have access to applicant's property as may be needed to verify the information provided, to observe site conditions, and if a permit is granted, to verify that terms and conditions of the permit are followed."
Response: It is understood the City has access to the property to verify information regarding trees.

Review Authority
Subsection 4.610.00 (.03) B.

C2. **Criterion:** "Type C. Where the site is proposed for development necessitating site plan review or plat approval by the Development Review Board, the Development Review Board shall be responsible for granting or denying the application for a Tree Removal Permit, and that decision may be subject to affirmance, reversal or modification by the City Council, if subsequently reviewed by the Council."
Response: The requested removal is connected to site plan review by the Development Review Board for new development. The tree removal is thus being reviewed by the DRB.

Conditions of Approval
Subsection 4.610.00 (.06) A.

C3. **Criterion:** "Conditions. Attach to the granting of the permit any reasonable conditions considered necessary by the reviewing authority including, but not limited to, the recording of any plan or agreement approved under this subchapter, to ensure that the intent of this Chapter will be fulfilled and to minimize damage to, encroachment on or interference with natural resources and processes within wooded areas;"
Response: No additional conditions are recommended pursuant to this subsection.

Completion of Operation
Subsection 4.610.00 (.06) B.

C4. **Criterion:** "Whenever an application for a Type B, C or D Tree Removal Permit is granted, the reviewing authority shall:" "Fix a reasonable time to complete tree removal operations;"
Response: It is understood the tree removal will be completed prior to construction of the proposed parking lot, which is a reasonable time frame for tree removal.

Security for Permit Compliance
Subsection 4.610.00 (.06) C.

C5. **Criterion:** "Whenever an application for a Type B, C or D Tree Removal Permit is granted, the reviewing authority shall:" "Require the Type C permit grantee to file with the City a cash or corporate surety bond or irrevocable bank letter of credit in an amount determined necessary by the City to ensure compliance with Tree Removal Permit conditions and this Chapter.

1. This requirement may be waived by the Planning Director if the tree removal must be completed before a plat is recorded, and the applicant has complied with WC 4.264(1) of this Code."

Response: No bond is anticipated to be required to ensure compliance with the tree removal plan as a bond is required for overall landscaping.

Tree Removal Standards
Subsection 4.610.10 (.01)

C6. **Criteria:** "Except where an application is exempt, or where otherwise noted, the following standards shall govern the review of an application for a Type A, B, C or D Tree Removal Permit:" Listed A. through J.

Response: The standards of this subsection are met as follows:

- Standard for the Significant Resource Overlay Zone: The proposed tree removal is not within the Significant Resource Overlay Zone.
- Preservation and Conservation: The applicant has taken tree preservation into consideration, resulting in the preservation of as many trees on the site as feasible without impacting the ability to expand the parking area.
- Development Alternatives: No significant wooded areas or trees would be preserved by design alternatives.
- Land Clearing: Land clearing will not exceed the permitted areas.
- Residential Development: The proposed activity does not involve residential development, therefore this criteria does not apply.
- Compliance with Statutes and Ordinances: The necessary tree replacement and protection is planned according to the requirements of tree preservation and protection ordinance.
- Relocation or Replacement: The applicant proposes to plant 69 trees on site, exceeding the replacement requirements for the seven proposed for removal.
- Limitation: Tree removal is limited to where it is necessary for construction or to address nuisances or where the health of the trees warrants removal.
- Additional Standards: A tree survey has been provided, and no utilities are proposed to be located where they would cause adverse environmental consequences.

Review Process
Subsection 4.610.40 (.01)

C7. **Criteria:** "Approval to remove any trees on property as part of a site development application may be granted in a Type C permit. A Type C permit application shall be reviewed by the standards of this subchapter and all applicable review criteria of Chapter 4. Application of the standards of this section shall not result in a reduction of square footage or loss of density, but may require an applicant to modify plans to allow for buildings of greater height. If an applicant proposes to remove trees and submits a landscaping plan as part of a site development application, an application for a Tree Removal Permit shall be included. The Tree Removal Permit application will be reviewed in the Stage II development review process, and any plan changes made that affect trees after Stage II review of a development application shall be subject to review by DRB. Where mitigation is required for tree removal, such mitigation may be considered as part of the landscaping requirements as set forth in this Chapter. Tree removal shall not commence until approval of the required Stage II application and the expiration of the appeal period following that decision. If a decision approving a Type C permit is appealed, no trees shall be removed until the appeal has been settled."
Response: The plan is being reviewed concurrently with the Stage II Final Plan.

Tree Maintenance and Protection Plan
Section 4.610.40 (.02)

C8. **Criteria:** "The applicant must provide ten copies of a Tree Maintenance and Protection Plan completed by an arborist that contains the following information:" Listed A. 1. through A. 7.
Response: The applicant has submitted the necessary copies of a Tree Maintenance and Protection Plan as shown in Exhibit B1.

Replacement and Mitigation

Tree Replacement Requirement
Subsection 4.620.00 (.01)

C9. **Criterion:** "A Type B or C Tree Removal Permit grantee shall replace or relocate each removed tree having six (6) inches or greater d.b.h. within one year of removal."
Response: Seven trees are proposed for removal; 69 trees are proposed to be planted, exceeding a one-to-one ratio.

Basis for Determining Replacement
Subsection 4.620.00 (.02)

C10. **Criteria:** "The permit grantee shall replace removed trees on a basis of one (1) tree replanted for each tree removed. All replacement trees must measure two inches (2") or more in diameter."
Response: Seven trees are proposed for removal; 69 trees are proposed to be planted,

exceeding a one-to-one ratio. Trees will meet the minimum caliper requirement or will be required to by Condition of Approval PDC 3.

Replacement Tree Requirements
Subsection 4.620.00 (.03)

C11. **Criteria:** "A mitigation or replacement tree plan shall be reviewed by the City prior to planting and according to the standards of this subsection.

A. Replacement trees shall have shade potential or other characteristics comparable to the removed trees, shall be appropriately chosen for the site from an approved tree species list supplied by the City, and shall be state Department of Agriculture Nursery Grade No. 1 or better.

B. Replacement trees must be staked, fertilized and mulched, and shall be guaranteed by the permit grantee or the grantee's successors-in-interest for two (2) years after the planting date.

C. A "guaranteed" tree that dies or becomes diseased during that time shall be replaced.

D. Diversity of tree species shall be encouraged where trees will be replaced, and diversity of species shall also be maintained where essential to preserving a wooded area or habitat."

Response: Condition of Approval PDC 4 ensures the relevant requirements are met.

Replacement Tree Stock Requirements
Subsection 4.620.00 (.04)

C12. **Criterion:** "All trees to be planted shall consist of nursery stock that meets requirements of the American Association of Nurserymen (AAN) American Standards for Nursery Stock (ANSI Z60.1) for top grade."

Response: The planting notes on the applicant's sheet L2.0 in Exhibit B2 indicates the appropriate quality.

Replacement Trees Locations
Subsection 4.620.00 (.05)

C13. **Criterion:** "The City shall review tree relocation or replacement plans in order to provide optimum enhancement, preservation and protection of wooded areas. To the extent feasible and desirable, trees shall be relocated or replaced on-site and within the same general area as trees removed."

Response: The applicant proposes to mitigate for all removed trees on site and in the appropriate locations for the proposed development.

Protection of Preserved Trees

Tree Protection During Construction
Section 4.620.10

C14. **Criteria:** "Where tree protection is required by a condition of development under Chapter 4 or by a Tree Maintenance and Protection Plan approved under this subchapter, the following standards apply:" Listed A. through D.

Response: Condition of Approval PDC 5 assures the applicable requirements of this Section will be met.

Engineering Conditions and Requirements for Proposed Development

From: Steve Adams, PE Development Engineering Manager
To: Kimberly Rybold, AICP
Date: September 12, 2017
Proposal: DW Fritz site Modifications

Engineering Division Conditions:

Request A: DB17-0008 Stage II Final Plan Revision

PF 1.	Public Works Plans and Public Improvements shall conform to the "Public Works Plan Submittal Requirements and Other Engineering Requirements" in Exhibit C1.
PF 2.	Site access shall be via the two existing driveways located on Boeckman Road. It should be noted that with the reclassification of Boeckman Road to a minor arterial in the 2013 Transportation System Plan these driveways no longer comply with access spacing requirements of 1,000 feet preferred and 600 feet minimum for minor arterials. However, the driveways align with existing driveways on the north side of the road and a waiver to access spacing standards is allowed.
PF 3.	No site access shall be taken to/from Kinsman Road.
PF 4.	City records indicate no Public Utility Easement exists on the property fronting Boeckman Road. The City's 2013 Transportation System Plan classifies Boeckman Road as a Minor Arterial. Per Section 101.8.14 of the Public Works Standards, applicant shall be required to dedicate a 10-ft wide Public Utility Easement along all property fronting Boeckman Road.
PF 5.	Both Boeckman Road and Kinsman Road (under construction) are or will be fully developed and in compliance with the 2013 Transportation System Plan and to Public Works Standards. No improvements to either road are required and no additional right-of-way is needed.

Exhibit C1
Public Works Plan Submittal Requirements
and Other Engineering Requirements

1. All construction or improvements to public works facilities shall be in conformance to the City of Wilsonville Public Works Standards - 2015.

2. Applicant shall submit insurance requirements to the City of Wilsonville in the following amounts:

Coverage *(Aggregate, accept where noted)*	**Limit**
Commercial General Liability:	
▪ General Aggregate (per project)	$3,000,000
▪ General Aggregate (per occurrence)	$2,000,000
▪ Fire Damage (any one fire)	$50,000
▪ Medical Expense (any one person)	$10,000
Business Automobile Liability Insurance:	
▪ Each Occurrence	$1,000,000
▪ Aggregate	$2,000,000
Workers Compensation Insurance	$500,000

3. No construction of, or connection to, any existing or proposed public utility/improvements will be permitted until all plans are approved by Staff, all fees have been paid, all necessary permits, right-of-way and easements have been obtained and Staff is notified a minimum of 24 hours in advance.

4. All public utility/improvement plans submitted for review shall be based upon a 22"x 34" format and shall be prepared in accordance with the City of Wilsonville Public Work's Standards.

5. Plans submitted for review shall meet the following general criteria:

   a. Utility improvements that shall be maintained by the public and are not contained within a public right-of-way shall be provided a maintenance access acceptable to the City. The public utility improvements shall be centered in a minimum 15-ft. wide public easement for single utilities and a minimum 20-ft wide public easement for two parallel utilities and shall be conveyed to the City on its dedication forms.
   b. Design of any public utility improvements shall be approved at the time of the issuance of a Public Works Permit. Private utility improvements are subject to review and approval by the City Building Department.
   c. In the plan set for the PW Permit, existing utilities and features, and proposed new private utilities shall be shown in a lighter, grey print. Proposed public improvements shall be shown in bolder, black print.

d. All elevations on design plans and record drawings shall be based on NAVD 88 Datum.
e. All proposed on and off-site public/private utility improvements shall comply with the State of Oregon and the City of Wilsonville requirements and any other applicable codes.
f. Design plans shall identify locations for street lighting, gas service, power lines, telephone poles, cable television, mailboxes and any other public or private utility within the general construction area.
g. As per City of Wilsonville Ordinance No. 615, all new gas, telephone, cable, fiber-optic and electric improvements etc. shall be installed underground. Existing overhead utilities shall be undergrounded wherever reasonably possible.
h. Any final site landscaping and signing shall not impede any proposed or existing driveway or interior maneuvering sight distance.
i. Erosion Control Plan that conforms to City of Wilsonville Ordinance No. 482.
j. Existing/proposed right-of-way, easements and adjacent driveways shall be identified.
k. All engineering plans shall be printed to PDF, combined to a single file, stamped and digitally signed by a Professional Engineer registered in the State of Oregon.
l. All plans submitted for review shall be in sets of a digitally signed PDF and three printed sets.

6. Submit plans in the following general format and order for all public works construction to be maintained by the City:

a. Cover sheet
b. City of Wilsonville construction note sheet
c. General construction note sheet
d. Existing conditions plan.
e. Erosion control and tree protection plan.
f. Site plan. Include property line boundaries, water quality pond boundaries, sidewalk improvements, right-of-way (existing/proposed), easements (existing/proposed), and sidewalk and road connections to adjoining properties.
g. Grading plan, with 1-foot contours.
h. Composite utility plan; identify storm, sanitary, and water lines; identify storm and sanitary manholes.
i. Detailed plans; show plan view and either profile view or provide i.e.'s at all utility crossings; include laterals in profile view or provide table with i.e.'s at crossings; vertical scale 1"= 5', horizontal scale 1"= 20' or 1"= 30'.
j. Street plans.
k. Storm sewer/drainage plans; number all lines, manholes, catch basins, and cleanouts for easier reference
l. Water and sanitary sewer plans; plan; number all lines, manholes, and cleanouts for easier reference.
m. Detailed plan for storm water detention facility (both plan and profile views), including water quality orifice diameter and manhole rim elevations. Provide detail of inlet structure and energy dissipation device. Provide details of drain inlets, structures, and

piping for outfall structure. Note that although storm water detention facilities are typically privately maintained they will be inspected by engineering, and the plans must be part of the Public Works Permit set.

n. Detailed plan for water quality facility (both plan and profile views). Note that although storm water quality facilities are typically privately maintained they will be inspected by Natural Resources, and the plans must be part of the Public Works Permit set.
o. Composite franchise utility plan.
p. City of Wilsonville detail drawings.
q. Illumination plan.
r. Striping and signage plan.
s. Landscape plan.

7. Design engineer shall coordinate with the City in numbering the sanitary and stormwater sewer systems to reflect the City's numbering system. Video testing and sanitary manhole testing will refer to City's numbering system.

8. The applicant shall install, operate and maintain adequate erosion control measures in conformance with the standards adopted by the City of Wilsonville Ordinance No. 482 during the construction of any public/private utility and building improvements until such time as approved permanent vegetative materials have been installed.

9. Applicant shall work with City Engineering before disturbing any soil on the respective site. If 5 or more acres of the site will be disturbed applicant shall obtain a 1200-C permit from the Oregon Department of Environmental Quality. If 1 to less than 5 acres of the site will be disturbed a 1200-CN permit from the City of Wilsonville is required.

10. The applicant shall be in conformance with all stormwater and flow control requirements for the proposed development per the Public Works Standards.

11. A storm water analysis prepared by a Professional Engineer registered in the State of Oregon shall be submitted for review and approval by the City.

12. The applicant shall be in conformance with all water quality requirements for the proposed development per the Public Works Standards. If a mechanical water quality system is used, prior to City acceptance of the project the applicant shall provide a letter from the system manufacturer stating that the system was installed per specifications and is functioning as designed.

13. Storm water quality facilities shall have approved landscape planted and/or some other erosion control method installed and approved by the City of Wilsonville prior to streets and/or alleys being paved.

14. The applicant shall contact the Oregon Water Resources Department and inform them of any existing wells located on the subject site. Any existing well shall be limited to irrigation purposes only. Proper separation, in conformance with applicable State standards, shall be

maintained between irrigation systems, public water systems, and public sanitary systems. Should the project abandon any existing wells, they shall be properly abandoned in conformance with State standards.

15. All survey monuments on the subject site, or that may be subject to disturbance within the construction area, or the construction of any off-site improvements shall be adequately referenced and protected prior to commencement of any construction activity. If the survey monuments are disturbed, moved, relocated or destroyed as a result of any construction, the project shall, at its cost, retain the services of a registered professional land surveyor in the State of Oregon to restore the monument to its original condition and file the necessary surveys as required by Oregon State law. A copy of any recorded survey shall be submitted to Staff.

16. Sidewalks, crosswalks and pedestrian linkages in the public right-of-way shall be in compliance with the requirements of the U.S. Access Board.

17. No surcharging of sanitary or storm water manholes is allowed.

18. The project shall connect to an existing manhole or install a manhole at each connection point to the public storm system and sanitary sewer system.

19. A City approved energy dissipation device shall be installed at all proposed storm system outfalls. Storm outfall facilities shall be designed and constructed in conformance with the Public Works Standards.

20. The applicant shall provide a 'stamped' engineering plan and supporting information that shows the proposed street light locations meet the appropriate AASHTO lighting standards for all proposed streets and pedestrian alleyways.

21. All required pavement markings, in conformance with the Transportation Systems Plan and the Bike and Pedestrian Master Plan, shall be completed in conjunction with any conditioned street improvements.

22. Street and traffic signs shall have a hi-intensity prismatic finish meeting ASTM 4956 Spec Type 4 standards.

23. The applicant shall provide adequate sight distance at all project driveways by driveway placement or vegetation control. Specific designs to be submitted and approved by the City Engineer. Coordinate and align proposed driveways with driveways on the opposite side of the proposed project site.

24. The applicant shall provide adequate sight distance at all project street intersections, alley intersections and commercial driveways by properly designing intersection alignments, establishing set-backs, driveway placement and/or vegetation control. Coordinate and align proposed streets, alleys and commercial driveways with existing streets, alleys and

commercial driveways located on the opposite side of the proposed project site existing roadways. Specific designs shall be approved by a Professional Engineer registered in the State of Oregon. As part of project acceptance by the City the Applicant shall have the sight distance at all project intersections, alley intersections and commercial driveways verified and approved by a Professional Engineer registered in the State of Oregon, with the approval(s) submitted to the City (on City approved forms).

25. Access requirements, including sight distance, shall conform to the City's Transportation Systems Plan (TSP) or as approved by the City Engineer. Landscaping plantings shall be low enough to provide adequate sight distance at all street intersections and alley/street intersections.

26. Applicant shall design interior streets and alleys to meet specifications of Tualatin Valley Fire & Rescue and Allied Waste Management (United Disposal) for access and use of their vehicles.

27. The applicant shall provide the City with a Stormwater Maintenance and Access Easement (on City approved forms) for City inspection of those portions of the storm system to be privately maintained. Stormwater or rainwater LID facilities may be located within the public right-of-way upon approval of the City Engineer. Applicant shall maintain all LID storm water components and private conventional storm water facilities; maintenance shall transfer to the respective homeowners association when it is formed.

28. The applicant shall "loop" proposed waterlines by connecting to the existing City waterlines where applicable.

29. Applicant shall provide a minimum 6-foot Public Utility Easement on lot frontages to all public right-of-ways. An 8-foot PUE shall be provided along Collectors. A 10-ft PUE shall be provided along Minor and Major Arterials.

30. For any new public easements created with the project the Applicant shall be required to produce the specific survey exhibits establishing the easement and shall provide the City with the appropriate Easement document (on City approved forms).

31. Mylar Record Drawings:

    At the completion of the installation of any required public improvements, and before a 'punch list' inspection is scheduled, the Engineer shall perform a record survey. Said survey shall be the basis for the preparation of 'record drawings' which will serve as the physical record of those changes made to the plans and/or specifications, originally approved by Staff, that occurred during construction. Using the record survey as a guide, the appropriate changes will be made to the construction plans and/or specifications and a complete revised 'set' shall be submitted. The 'set' shall consist of drawings on 3 mil. Mylar and an electronic copy in AutoCAD, current version, and a digitally signed PDF.

Natural Resource Findings, Conditions, and Requirements for Proposed Development

From: Kerry Rappold, Natural Resources Manager
To: Kimberly Rybold, Associate Planner
Date: September 12, 2017
Proposal: DB17-0008 – DW Fritz Parking Lot Expansion and Site Revisions

Natural Resources Division Conditions:

All Requests

NR 1.	Natural Resource Division Requirements and Advisories listed in Exhibit C2 apply to the proposed development.

Findings for DB17-0008 through DB17-0010

Stormwater Management Requirements

1. Pursuant to the 2015 Public Works Standards, infiltration testing shall be conducted to determine the site's suitability for the proposed stormwater management facilities. Testing shall be conducted or observed by a qualified individual working under the supervision of a Professional Engineer, Registered Geologist, or Certified Engineering Geologist licensed in the State of Oregon.
2. Provide profiles, plan views, landscape information, and specifications for the proposed stormwater facilities consistent with the requirements of the 2015 Public Works Standards.
3. Pursuant to the 2015 Public Works Standards, the applicant shall submit an updated maintenance plan (including the City's stormwater maintenance and access easement) for the proposed stormwater facilities prior to approval for occupancy of the associated development.
4. Pursuant to the 2015 Public Works Standards, access shall be provided to all areas of the proposed stormwater facilities. At a minimum, at least one access shall be provided for maintenance and inspection.

Other Requirements

5. The applicant shall comply with all applicable state and federal requirements for the proposed construction activities (e.g., DEQ NPDES #1200–CN permit).

Building Conditions, Requirements, & Advisories for Proposed Development

From:	Don Walters, Plans Examiner, Building Division
To:	Kimberly Rybold, AICP, Associate Planner
Proposal:	DWFritz Trash Enclosure and Parking Lot Expansion Terrace
Case File:	DB17-0009

Building Division Conditions:

BD 1.	**Accessible Parking.** While what is shown on these preliminary plans appears to be in general compliance with the code. The plans do not contain sufficient information to fully review the accessible parking or the accessible drop-off zone. The additional information available at the building permit submittal may require changes to their design.

From:	BROOKING Joshua C
To:	Rybold, Kim
Subject:	RE: Wilsonville Development Review Team Mailing (DB17-0008 et seq DW Fritz Renovation - 9600 SW Boeckman Rd)
Date:	Tuesday, September 12, 2017 12:34:59 PM
Attachments:	image001.png DB17-0008 et seq DW Fritz DRT Notice.pdf

Hi Kim,

Based on ODOT Planning and ODOT Rail & Public Transit Division review of the application (including parking lot expansion, trash enclosure revisions, landscaping modifications), the proposal does not materially alter the site's access. With that said, however, there is potential concerns moving forward with the increased traffic through the crossing and the future development potential of the site. The comments below are intended to be advisory to the City and future development within the crossing area, particularly related to the vacant areas of this site.

Future land development, partition/subdivisions, planning actions, zone changes, design reviews, etc., need to be reviewed by ODOT RPTD Crossing Safety Unit and may require further traffic study(ies) and/or access modifications – these modifications may include turning movement restrictions. Alterations to the crossing require authorization via the ODOT crossing Order process that includes input from the road authority, the railroad(s), and ODOT RPTD. Barrier (i.e. fencing) between railroad property and that of the development is strongly recommended to assist with trespass prevention.

The Oregon Department of Transportation appreciates participating in the City's land use process and opportunity to comment. Please feel free to let me know if you have any questions.

Thank you!

Josh

Joshua Brooking
Planner
Region 1, Planning
Oregon Department of Transportation
503.731.3049
joshua.c.brooking@odot.state.or.us

From: Rybold, Kim [mailto:rybold@ci.wilsonville.or.us]
Sent: Monday, September 11, 2017 10:57 AM
To: BROOKING Joshua C
Subject: RE: Wilsonville Development Review Team Mailing (DB17-0008 et seq DW Fritz Renovation - 9600 SW Boeckman Rd)

Josh,
The fencing and gates facing Boeckman Road are demolished by necessity for the paving and landscaping work. The fencing at the east side rail ROW is to remain.

Kim Rybold, AICP
Associate Planner

503.570.1583
rybold@ci.wilsonville.or.us

Disclosure Notice: Messages to and from this e-mail address may be subject to the Oregon Public Records Law.

From: BROOKING Joshua C [mailto:Joshua.C.BROOKING@odot.state.or.us]
Sent: Friday, September 08, 2017 10:38 AM
To: Rybold, Kim
Subject: RE: Wilsonville Development Review Team Mailing (DB17-0008 et seq DW Fritz Renovation - 9600 SW Boeckman Rd)

One item I missed, do you know if the site's fencing and gate are to remain? Particularly along the rail ROW and the gate at the easternmost access.

Let me know! Thanks!

Josh

Joshua Brooking
Planner
Region 1, Planning
Oregon Department of Transportation
503.731.3049
joshua.c.brooking@odot.state.or.us

From: BROOKING Joshua C
Sent: Thursday, September 07, 2017 11:34 AM
To: 'White, Shelley'; 'rybold@ci.wilsonville.or.us'
Subject: RE: Wilsonville Development Review Team Mailing (DB17-0008 et seq DW Fritz Renovation - 9600 SW Boeckman Rd)

Never mind. You attached it here. Thanks!

From: White, Shelley [mailto:swhite@ci.wilsonville.or.us]
Sent: Tuesday, September 05, 2017 11:41 AM
To: Andrew Schafer (Andrew.Schafer@pgn.com); Stone, Andy; Gray, Arnie; Jacobson, Barbara; Ben Baldwin (DevelopmentReview@trimet.org); EBELING Robert W; Brian Harper (Brian.Harper@oregonmetro.gov); Brian Kelley (Brian.Kelley@nwnatural.com); Stevenson, Brian; Cosgrove, Bryan; Neamtzu, Chris; Cindy Crowder (crowderc@wlwv.k12.or.us); Carlson, Dan; Stark, Dan; Pauly, Daniel; Kerber, Delora; Walters, Don; Brashear, Dwight; Loomis, Eric; Frank Lonergan ; Parent, Gail; PECK Heather; James Rhodes (JRhodes@clackamas.us); Jason Arn (Jason.Arn@tvfr.com); LaBrie, Jason; Stoller, Kate; Dr. Kathy Ludwig (ludwigk@wlwv.k12.or.us); Kenneth Parris (kenneth_parris@cable.comcast.com); Rappold, Kerry; Lance Cheeley (Lance.Cheeley@nwnatural.com); Ottenad, Mark; Baker, Matt; McCarty, Mike; Ward, Mike; Kraushaar, Nancy; Duke, Pat; Watson, Randy; Region 1 DEVREV Applications; Rich Girard ; Simonton, Scott; Adams, Steve; Tiffany Ritchey (tiffany.ritchey@pgn.com); Woodley, Tim; Blankenship, Tod
Subject: Wilsonville Development Review Team Mailing (DB17-0008 et seq DW Fritz Renovation - 9600 SW Boeckman Rd)

Development Review Team,

Please find the attached Development Review Team Mailing for your review:

DB17-0008 et seq DW Fritz Renovation: Site Modifications to 9600 SW Boeckman Road

Please note that comments/conditions are due to Kimberly Rybold by 4 p.m. on September 12, 2017.

Thank you,

Shelley White
Administrative Assistant
City of Wilsonville

503.570.1575
swhite@ci.wilsonville.or.us
www.ci.wilsonville.or.us

29799 SW Town Center Loop East, Wilsonville, OR 97070

LANCE MUELLER & ASSOCIATES
ARCHITECTS · AIA
130 Lakeside, Suite 250
Seattle, Washington 98122
(206)325-2553
(206)328-0554 Fax

Date: 5/8/17

Project Narrative:

Job: **DWFRITZ Renovation** Job No. 16-066
9900 SW Boeckman Road
Wilsonville, OR 97070

1. **Project Narrative:** This portion of the project is submitted for Site Design Review for:
   a. Site work for additional paving for parking, service areas, and circulation to serve the DWFRITZ interior tenant improvements currently in permit review (submitted by Hacker). The site work includes civil design, landscaping, and site lighting.
   b. The new small Lobby addition by Hacker.
   c. The new stair, ramp, trash/recycle enclosure on the East side by Hacker.

The following is an item by item response to the Incomplete Application Notice of 3/28/17:

Parking, Access, and Circulation:

2. **Bicycle Parking: (**Note, quality bike parking is important to DWFRITZ for happy employees, and an example is their current Wilsonville building with indoor bike parking with adjacent showers.) For this facility DWFRITZ's longer range plan includes indoor bike storage near showers in the proposed Fitness Facility, a later phase to be located in the current Chapel area. Below is our temporary proposal for this permit:

   Code bike parking count calculations *[per Section 4.155 (.04) and Table 5 Parking Standards]* are under Statistics in Sheet A1.1. Our proposal is to locate bike parking in two areas:
   - **Short-term bike parking near lobby:** A permanent uncovered stylish rack (serves 2 bikes) is proposed at the new Lobby addition for occasional guests. See attached information on this bike rack on sheet A-101C.
   - **Long-term bike parking for employees**: Interior bike parking is proposed as a TI (by Hacker), and current planning proposes wall-mounted bike racks in a dedicated room at the SW corner of the building. It will have an outside entrance and is adjacent to the proposed fitness area showers. Note this room allocates space for (31) - 2' x 6' stalls and code minimum would be 16 inside. The room will be secured and monitored by DWFRITZ. See attached sheet A-101C, which is preliminary but shows design intent for TI.

3. **Loading Area Information:** Code calculations for commercial and industrial use requirements for over 100,000sf buildings *[per Section 4.155 (.05), A., 1.]* are under Statistics in Sheet A1.1. Three is the code minimum and we propose 7, and we exceed size and clearance minimum requirements.

4. **Pedestrian Circulation:** Site details are added to further define the pedestrian circulation conditions. The new ADA ramp and stair on the East side is a TI item by Hacker, and we've added Hacker's Sheet A-420 to this set for review. Note this sheet was submitted for TI permit by Hacker recently.

5. **Identification of Existing versus New Parking Spaces:** We've added civil drawings to the submittal, and Sheet C1.0 clarifies new versus existing paving clearly.

6. **Carpool/Vanpool parking Spaces:** Code calculations for carpool/vanpool *[per Section 4.155 (.06), A., 1.]* are under Statistics in Sheet A1.1. Location is near the new lobby addition and priority is given to be nearest the entry door.

Stormwater:

7. **Prelim Civil drawings** are added to the submittal drawings. Note this is a progress drawing pending Public Works confirmation.

Trees and Landscaping

8. **Final landscaping** plan is included for review.
9. **Tree Maintenance & Protection Plan & Report** by arborist with protection details is added.
10. **Significant Resource Overlay Zone** boundary as identified on the survey is on our coordinated site plans.

Traffic:

11. **A Traffic Study Analysis** has been ordered by the owners from DKS Engineering.

Solid Waste/Recyclable Enclosures:

12. **Solid Waste/Recyclable Enclosures:** Code calculations for solid waste/recyclable enclosures *[per Section 4.179 (.06), B., 1.& 3.]* are under Statistics in Sheet A1.1. We propose the enclosures will be located in two areas:
    - **a.** A new enclosure with stair and ramp in on the east side of the building is a TI item by Hacker. We've attached Hacker's Sheet A-420 to define this area for review. Note this sheet was submitted for TI permit by Hacker recently.
    - **b.** A greatly enlarged existing solid waste/recyclable enclosure at the SW corner of the building. See the enlarged plan that defines the enclosure. See the landscaping plan for the additional plant material for visually screening the enclosure.

Outdoor Lighting

13. **Lighting performance:** Exterior lighting is 100% new LED fixture heads, although we reuse many existing lighting poles to mount the new fixtures. Performance is calculated on the non-residential prescriptive method of lighting conformance.
    - **a.** **Lighting Overlay Zones:** Our site is LZ2 per Section 4.199.30 (.02) B.
    - b. **Pole Heights** fall well under the maximum height limits on Table 8 of Section 4.199.60.
    - c. **Luminaire Setback:** We meet this requirement because the adjacent properties are the same LZ2, per Section 4.199.40 (.01) B. 4. a. Exception 1.
    - d. **Lighting Plan** includes lighting by type and location, as well as a fixture schedule and point by point lighting levels.
    - e. **Fixture Cuts** are attached for each fixture typek.

14. **Lighting performance:** See attached Com Chk document confirming we are 64% better than the code prescriptive method of lighting conformance.

15. **Lighting Curfew:** per Section 4.199.60 (Table 10); exterior lighting curfew for our LZ2 Lighting Zone in 10:00PM.

Site Design Review

16. **Site Design Review**

Section 4.440.(01): This defines submission requirements.

- **B.** Our resubmittal adds the tree maintenance and protection plan by an arborist (item #9 above).
- **E.** No signage plan is proposed at this time. It will be a separate permit review.

Section 4.440.(02): We acknowledge there will be a Design Review Board hearing after the Staff Report is prepared..

CITY OF WILSONVILLE

29799 SW Town Center Loop East
Wilsonville, OR 97070
Phone: 503.682.4960
Fax: 503.682.7025
Web: www.ci.wilsonville.or.us

Pre-Application meeting date:

TO BE COMPLETED BY APPLICANT:
Please PRINT legibly

Planning Division
Development Permit Application

Final action on development application or zone change is required within 120 days in accordance with provisions of ORS 227.175

A pre application conference is normally required prior to submittal of an application. Please visit the City's website for submittal requirements

Incomplete applications will not be scheduled for public hearing until all of the required materials are submitted.

Applicant:

Mac Martin, W-4 LLC

Address: PO Box 15523, Seattle WA 98115

Phone: 206.399.6676

Fax:

E-mail: macmartinis@gmail.com

Authorized Representative:

SAME AS APPLICANT

Address:

Phone:

Fax:

E-mail:

Property Owner:

SAME AS APPLICANT

Address:

Phone:

Fax:

E-mail:

Property Owner's Signature:

Printed Name: Mac Martin Date: 3/15/17

Applicant's Signature *(if different from Property Owner):*

Printed Name: Date:

Site Location and Description:

Project Address if Available: 9600 Boeckman Road, Willsonville OR 97224 Suite/Unit

Project Location: 05008927;

Tax Map #(s): Tax Lot #(s): 00810331; 05021199 County: ☐ Washington ☒ Clackamas

Request: Site Design Review of the revised existing site plan and lobby addition, to accommodate the DWFRITZ Precision Automation renovation of the existing building. This is a phased fast-track project, and the existing building shell is currently being constructed under building permit BB16-0650. Building permits will be needed for the site work, the lobby addition, and the tenant improvements; and the work must be approved prior to occupancy.

Project Type: Class I ☐ Class II ☐ Class III ☐

☐ Residential ☐ Commercial ☒ Industrial ☐ Other (describe below)

Application Type:

☐ Annexation	☐ Appeal	☐ Comp Plan Map Amend	☐ Conditional Use
☐ Final Plat	☐ Major Partition	☐ Minor Partition	☐ Parks Plan Review
☐ Plan Amendment	☐ Planned Development	☐ Preliminary Plat	☐ Request to Modify Conditions
☐ Request for Special Meeting	☐ Request for Time Extension	☐ Signs	☐ Site Design Review
☐ SROZ/SRIR Review	☐ Staff Interpretation	☐ Stage I Master Plan	☐ Stage II Final Plan
☐ Type C Tree Removal Plan	☐ Tree Removal Permit (B or C)	☐ Temporary Use	☐ Variance
☐ Villebois SAP	☐ Villebois PDP	☐ Villebois PDP	☐ Waiver
☐ Zone Map Amendment	☐ Other		

Morgan Holen & Associates LLC
Consulting Arborists and Urban Forest Management
971.409.9354
3 Monroe Parkway, Suite P 220
Lake Oswego, Oregon 97035
morgan.holen@comcast.net

DW Fritz Site Modifications – Wilsonville, Oregon
Tree Maintenance and Protection Plan
May 13, 2017
Revised: August 2, 2017

MHA17027

Purpose

This Tree Maintenance and Protection Plan for the DW Fritz Site Modifications project located in Wilsonville, Oregon, is provided pursuant to City of Wilsonville Development Code, Section 4.610.40. This arborist report describes the existing trees located on and directly adjacent to the project site, as well as recommendations for tree removal, retention, mitigation, and protection. This report is based on observations made by International Society of Arboriculture (ISA) Board Certified Master Arborist (PN-6145B) and Qualified Tree Risk Assessor Morgan Holen during a site visit conducted on May 2, 2017. This report was revised on August 2, 2017, to account for removal of tree #1 for proposed ramp construction.

Scope of Work and Limitations

Morgan Holen & Associates, LLC, was contracted by Lance Mueller & Associates to visually assess existing trees measuring six inches in diameter and larger in terms of general condition and suitability for preservation with development, and to develop a tree maintenance and protection plan for the project. The project proposes site modifications, including renovations to the existing building and parking lot, a new parking lot, and landscaping. A site plan was provided by Lance Mueller & Associates illustrating the location of existing individual trees, four stands of trees, and potential construction impacts.

Stands 1-4 were generally assessed in terms of species composition and overall condition. Visual Tree Assessment (VTA[1]) was performed on existing individual trees located on and directly adjacent to the project site, except for 10 individual trees shown on the survey well beyond the proposed limits of work just west of Stand 2. Individual trees were evaluated in terms species, size, general condition, and potential construction impacts, and treatment recommendations include: retain, remove, or protect (separate classification for off-site trees). Following the inventory fieldwork, we coordinated with Lance Mueller & Associates to discuss and finalize treatment recommendations based on the proposed site plan and provide specifications for the Tree Protection Plan drawing.

The client may choose to accept or disregard the recommendations contained herein, or seek additional advice. Neither this author nor Morgan Holen & Associates, LLC, have assumed any responsibility for liability associated with the trees on or adjacent to this site.

General Description

The DW Fritz Site Modifications project is located at 9900 SW Boeckman Road in Wilsonville. There are two egresses to the site along the south side of SW Boeckman Road, with driveways leading south and around the existing building to parking lots east, south and southwest of the building. The existing trees are located around the building, in the parking lot, in the right-of-way along SW Boeckman Road, and in the undeveloped portion of the site to the west. A portion of the site to the west includes Significant Resource Overlay Zone (SROZ), which encompass Stands 2 and 3.

[1] Visual Tree Assessment (VTA): The standard process of visual tree inspection whereby the inspector visually assesses the tree from a distance and up close, looking for defect symptoms and evaluating overall condition and vitality.

Stand 1 is located west of the building, adjacent to Grace Chapel. Trees located in this stand are primarily mature Douglas-fir (*Pseudotsuga menziesii*) with some ponderosa pine (*Pinus ponderosa*) scattered along the west and north sides of the stand. There is recent storm damage to a few trees along the west side of stand 1 and individual trees are in variable condition, but overall the stand is in good condition as an intact and undisturbed group. Tree protection fencing is recommended along the edges of the stand, including tree driplines to the north and south, along the existing driveway to the west, and at driplines or the edge of the existing sidewalk to the east.

Stand 2 is the largest stand on the site. It is located in the southwest quadrant of the site and within the boundaries of the SROZ. This stand is dominated by Oregon ash (*Fraxinus latifolia*), but includes a mix of other native species such as Douglas-fir, ponderosa pine, bigleaf maple (*Acer macrophyllum*), and Oregon white oak (*Quercus garryana*). Individual trees are in variable condition, but overall the stand is in good condition as an intact and undisturbed group. Stand 2 is unaffected by the project, but tree protection fencing is recommended along the edge of the existing driveway and parking lot to create a physical barrier to prevent access into the stand during construction.

Stand 3 is also located in the SROZ, in the northwest corner of the site, but is separate from Stand 2. Stand 3 is composed of mature Douglas-fir in poor condition. Trees in this stand are dead or in a state of progressive decline. Root rot is suspected. A tree risk assessment is recommended for this stand because Boeckman Road is a primary target for tree failure and dead and dying trees with root disease have an increased risk of failure. However, for the purposes of this project, stand 3 is unaffected and no tree protection measures are needed.

Stand 4 is located west of the existing parking lot near the southern boundary of the site. It is a small group of trees consisting primarily of Douglas-fir, with two Oregon white oaks and one madrone (*Arbutus menziesii*). Stand 4 is in generally good condition as an intact group and tree protection fencing is recommended at the edge of the existing parking lot.

The enclosed tree data provides a complete description of 74 existing individual trees measuring 6-inches and larger in diameter that are located outside of stand boundaries. The inventory includes seven different trees species, including eight willows located in the right of way along SW Boeckman Road and three Oregon white oaks located off-site along the southern boundary of the project site. Table 1 provides a summary of the number of inventoried trees by species.

Table 1. Count of Trees by Species and Location – DW Fritz, Wilsonville, OR.

Common Name	Species Name	Total	%*
black cottonwood	*Populus trichocarpa*	**1**	**1%**
Douglas-fir	*Pseudotsuga menziesii*	**40**	**54%**
Oregon white oak	*Quercus garryana*	**10**	**14%**
ponderosa pine	*Pinus ponderosa*	**6**	**8%**
Port-Orford-cedar	*Chamaecyparis lawsoniana*	**7**	**9%**
scarlet oak	*Quercus coccinea*	**2**	**3%**
Willow	*Salix* spp.	**8**	**11%**
Total		**74**	**100%**

Tree Plan Recommendations

Of the 74 inventoried trees, 67 are planned for retention with protection during construction, including the three trees located off-site to the south. As shown on the Tree Protection Plan drawing, protection fencing is recommended at tree driplines or the limits of existing infrastructure that will remain. Tree #30 is the only tree potentially impacted by the proposed site modifications because parking lot and pathway construction is proposed beneath the dripline area. However, the potential impacts can be minimized and adequate protection is possible so long as tree protection specifications 5 and 6 (provided on the next page) are followed and construction beneath the dripline is performed under the guidance of a Qualified Arborist.

The other seven trees are planned for removal, including:

- **#1 –** A 16-inch diameter Douglas-fir in good condition planned for removal for proposed ramp construction. Adequate protection is not possible based on the proposed site plan.
- **#2** – A 13-inch diameter Douglas-fir in poor condition that is dying and not viable. This tree is located east of the building and within striking distance of the building and parking lot. Like tree #1, this tree is also impacted by the proposed ramp construction.
- **#7** – An 18-inch diameter Douglas-fir in fair condition with codominant leaders and included bark. This tree has increased risk of leader failure and the building and parking lot are primary targets. The stump of this tree should remain in the ground, be removed by stump grinding, or extracted from the ground under arborist supervision in order to prevent impacts to the likely interconnected roots of adjacent tree #6.
- **#8** – A 24-inch diameter Douglas-fir in fair condition with reduced vigor, pitch at the base of the trunk on the east and north faces, and a large *Phaeolus schweinitzii* mushroom positively identified on the east buttress root of the tree near the trunk. This tree is infected with red-brown cubical root and butt rot and has increased probability of whole tree failure with the building and parking lot being the primary targets. The stump and buttress roots of this tree should be extracted from the ground under arborist supervision.
- **#31** – A 26-inch diameter scarlet oak (*Quercus coccinea*) in fair condition with moderate crown structure. This tree will be removed for parking lot renovations. The stump of this tree should remain in the ground, be removed by stump grinding, or extracted from the ground under arborist supervision in order to prevent impacts to the likely interconnected roots of adjacent tree #30.
- **#62** – A 7-inch diameter willow (*Salix* spp.) located in the right-of-way just west of the eastern egress to the site in poor condition with substantial dieback. This tree is not viable and should be replaced with a new street tree.
- **#63** – A 10-inch diameter black cottonwood (*Populus trichocarpa*) in fair condition that appears to have sprouted from natural regeneration. This tree is growing against a small retaining wall east of the parking lot just south of the eastern egress to the site. Black cottonwood is a fast growing and short-lived tree with inherent species limitations.

As described in the enclosed tree data, individual trees were assigned a general condition rating as follows:

D: Dead

P: Poor Condition

F: Fair Condition

G: Good Condition

E: Excellent Condition

Table 2 provides a summary of the count of trees by general condition rating and treatment.

Table 2. Count of Inventoried Trees by Treatment Recommendation and General Condition Rating.

		General Condition Rating				
Treatment	**D**	**P**	**F**	**G**	**E**	**Total**
Protect (Off-Site Tree)	-	-	1	2	-	**3** (4%)
Retain	1	4	19	39	1	**64** (86%)
Remove	-	2	4	1	-	**7** (9%)
Total	**1** (1%)	**6** (8%)	**24** (32%)	**42** (57%)	**1** (1%)	**74** (100%)

*Percent total may not sum to 100 due to rounding.

Mitigation Requirements

All 74 inventoried trees are 6-inches or larger in diameter, including three off-site trees to be protected, 64 on-site trees to be retained, and seven trees planned for removal. The seven trees planned for removal will require mitigation per Section 4.620.00; removed trees shall be replaced on a basis of one tree planted for each tree removed. Therefore, seven trees measuring at least 2-inches in diameter shall be planted as mitigation for tree removal.

Tree Protection Standards

The on-site trees planned for retention and off-site trees adjacent to the project site will need special consideration to assure their protection during construction. We recommend a preconstruction meeting with the owner, contractors, and project arborist to review tree protection measures and address questions or concerns on site. Tree protection measures include:

1. **Fencing.** Trees to remain on site shall be protected by installation of tree protection fencing to prevent injury to tree trunks or roots, or soil compaction within the root protection area, which generally coincides with tree driplines or the limits of existing infrastructure that will remain. Fences shall be a minimum 5-foot high steel on concrete blocks or posts driven into the ground. The contractor is responsible for coordinating with the project arborist prior to opening or making adjustments to tree protection fencing.
2. **Tree Protection Zone.** Without authorization from the Project Arborist, none of the following shall occur beneath the dripline of any protected tree:
    a) Grade change or cut and fill;
    b) New impervious surfaces;
    c) Utility or drainage field placement;
    d) Staging or storage of materials and equipment; or
    e) Vehicle maneuvering.

The contractor shall be responsible for contacting the project arborist in a timely manner prior to working beneath protected tree driplines. Root protection zones may be entered for tasks like surveying, measuring, and, sampling. Fences must be closed upon completion of these tasks.

3. **Tree Removal.** The seven trees to be removed have been identified with numbered aluminum tags and yellow plastic flagging (#1, #2, #7, #8, #31, #62 and #63). The stumps from trees #7 and #31 shall either be cut flush with the ground surface and remain in place, removed by stump grinding, or extracted from the ground under arborist supervision, in order to help minimize impacts to the likely interconnected roots of nearby protected trees. The stump and buttress roots from tree #8 shall be extracted from the ground under arborist supervision.

4. **Pruning.** Pruning may be needed at trees #3, #4, #5 and #6 to provide for building clearance, and elsewhere to provide overhead clearance and remove dead and defective branches for safety. The project arborist can help identify where pruning is necessary once trees recommended for removal have been removed and the site is prepared for construction. Tree removal and pruning shall be performed by a Qualified Tree Service.

5. **Excavation.** Excavation beneath the dripline of protected trees shall be avoided if alternatives are feasible. Excavation immediately adjacent to roots larger than 2-inches in diameter beneath the dripline of retained trees shall be by hand or other non-invasive techniques to ensure that roots are not damaged. Where feasible, major roots shall be protected by tunneling or other means to avoid destruction or damage. Exceptions can be made if, in the opinion of the project arborist, unacceptable damage will not occur to the tree. Where soil grade changes affect the root protection area, the grade line should be meandered wherever practicable. This will require on-site coordination to ensure a reasonable balance between engineering, construction, and the need for tree protection.

6. **Surfacing.** Where new surfacing is proposed beneath the dripline of protected trees, coordinate with the project arborist to monitor construction. Avoid excavation and use a modified profile to build up from existing grade (Figure 1). The profile includes a layer of permeable geotextile fabric on the ground surface and clean crushed rock to raise the grade as needed. Surfacing may include asphalt, concrete, or other materials.

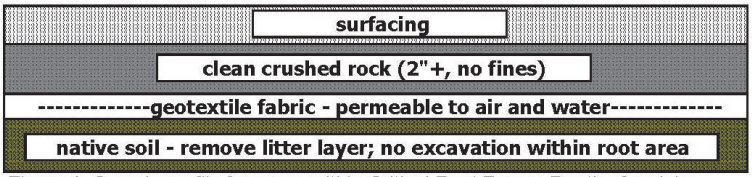


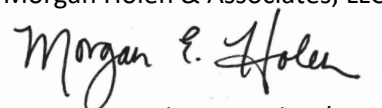
Figure 1. Sample profile for areas within Critical Root Zones. Depth of rock is dependent on grading. Technique based on best management practices.

7. **Landscaping.** Following construction and where landscaping is desired, apply approximately 3-inches of mulch beneath the dripline of protected trees in a minimum 5-foot radius around tree trunks; do not pile mulch directly against tree trunks. Shrubs and ground cover plants s may be planted within tree protection areas. If irrigation is used, use drip irrigation or low flow emitters installed at native grade (no trenching) only beneath the driplines of protected trees. Landscaping shall be performed by hand and with hand tools only beneath protected tree driplines; adjust the location of plants to avoid tree root impacts.

8. **Quality Assurance.** The project arborist should supervise proper execution of this plan on-call during construction activities that could encroach on retained trees. Tree protection site inspection monitoring reports should be provided to the Client and City following each site visit performed during construction.

Thank you for choosing Morgan Holen & Associates, LLC, to provide consulting arborist services for the DW Fritz Site Modifications project in Wilsonville, Oregon. Please contact us if you have questions or need any additional information.

Thank you,
Morgan Holen & Associates, LLC



Morgan E. Holen, Member/Owner
ISA Board Certified Master Arborist, PN-6145B
ISA Tree Risk Assessment Qualified
Forest Biologist

Enclosures: MHA17027 DW Fritz – Tree Data 5-2-17 Rev. 8-2-17

No.	Common Name	Species Name	DBH[1]	C-Rad[2]	Cond[3]	Comments	Treatment
1	Douglas-fir	*Pseudotsuga menziesii*	16	9	G	8-2-17: remove for ramp construction	remove
2	Douglas-fir	*Pseudotsuga menziesii*	13	14	P	dying, not viable	remove
3	Douglas-fir	*Pseudotsuga menziesii*	22	14	F	reduced vigor; prune for building clearance	retain
4	Douglas-fir	*Pseudotsuga menziesii*	22	20	F	old broken top, codominant leaders, large diameter surface roots; prune for building clearance	retain
5	Douglas-fir	*Pseudotsuga menziesii*	22	20	G	large diameter surface roots; prune for building clearance	retain
6	Douglas-fir	*Pseudotsuga menziesii*	24	20	G	large diameter surface roots; prune for building clearance	retain
7	Douglas-fir	*Pseudotsuga menziesii*	18	16	F	codominant leaders with included bark, increased risk potential	remove
8	Douglas-fir	*Pseudotsuga menziesii*	24	20	F	pitch at base on east and north faces, large *P. schweinitzii* mushroom on east buttress root, increased risk potential	remove
9	Douglas-fir	*Pseudotsuga menziesii*	28	18	G		retain
10	Oregon white oak	*Quercus garryana*	2x22	25	G	codominant leaders with included bark and seam, one-sided crown	retain
11	Douglas-fir	*Pseudotsuga menziesii*	48	25	E		retain
12	Oregon white oak	*Quercus garryana*	28	30	G		retain
13	Oregon white oak	*Quercus garryana*	10,16	20	F	one-sided crown	protect
14	Port-Orford-cedar	*Chamaecyparis lawsoniana*	14	10	G		retain
15	Port-Orford-cedar	*Chamaecyparis lawsoniana*	12	10	G		retain
16	Port-Orford-cedar	*Chamaecyparis lawsoniana*	12	10	G		retain
17	Port-Orford-cedar	*Chamaecyparis lawsoniana*	10	12	G		retain
18	Port-Orford-cedar	*Chamaecyparis lawsoniana*	10,12	12	G		retain
19	Port-Orford-cedar	*Chamaecyparis lawsoniana*	14	12	G		retain
20	Oregon white oak	*Quercus garryana*	4x18	22	G		protect
21	Port-Orford-cedar	*Chamaecyparis lawsoniana*	12	12	G		retain

No.	Common Name	Species Name	DBH[1]	C-Rad[2]	Cond[3]	Comments	Treatment
22	Oregon white oak	*Quercus garryana*	20	22	G		retain
23	Oregon white oak	*Quercus garryana*	22	18	G		retain
24	Oregon white oak	*Quercus garryana*	14	24	G	one-sided crown	retain
25	Oregon white oak	*Quercus garryana*	14	14	G		protect
26	Oregon white oak	*Quercus garryana*	2x16	18	G		retain
27	Douglas-fir	*Pseudotsuga menziesii*	16	16	G	base surrounded by blackberries	retain
28	Douglas-fir	*Pseudotsuga menziesii*	12	14	G		retain
29	ponderosa pine	*Pinus ponderosa*	16	12	G		retain
30	scarlet oak	*Quercus coccinea*	21	26	G		retain
31	scarlet oak	*Quercus coccinea*	26	32	F	moderate crown structure	remove
32	Douglas-fir	*Pseudotsuga menziesii*	29	20	F	reduced vigor	retain
33a	Douglas-fir	*Pseudotsuga menziesii*	14	20	F		retain
33b	Douglas-fir	*Pseudotsuga menziesii*	16	20	F		retain
33c	Douglas-fir	*Pseudotsuga menziesii*	7	8	P	suppressed, top dieback	retain
33d	Douglas-fir	*Pseudotsuga menziesii*	20	20	F		retain
34	Douglas-fir	*Pseudotsuga menziesii*	26	20	G	trunk sweep, pitch seam 0-4' north face	retain
35a	Douglas-fir	*Pseudotsuga menziesii*	16	20	F	reduced vigor	retain
35b	Douglas-fir	*Pseudotsuga menziesii*	8	6	P	suppressed	retain
35c	Douglas-fir	*Pseudotsuga menziesii*	32	24	G		retain
36a	Douglas-fir	*Pseudotsuga menziesii*	7	6	D	dead, low risk, some habitat value	retain
36b	Douglas-fir	*Pseudotsuga menziesii*	8	6	P	suppressed	retain
36c	Douglas-fir	*Pseudotsuga menziesii*	11	8	F	suppressed	retain
36d	Douglas-fir	*Pseudotsuga menziesii*	24	18	G	one-sided crown	retain
37a	Douglas-fir	*Pseudotsuga menziesii*	17	14	F		retain
37b	Douglas-fir	*Pseudotsuga menziesii*	26	22	F		retain
37c	Douglas-fir	*Pseudotsuga menziesii*	18	24	G		retain
37d	Douglas-fir	*Pseudotsuga menziesii*	28	24	G		retain
38	Douglas-fir	*Pseudotsuga menziesii*	39	26	G	broken top, multiple new leaders, pitch seam 0-8' on northwest face	retain

No.	Common Name	Species Name	DBH[1]	C-Rad[2]	Cond[3]	Comments	Treatment
39	ponderosa pine	*Pinus ponderosa*	39	30	G	western gall rust	retain
40	Douglas-fir	*Pseudotsuga menziesii*	21	26	F	overtopped by #41	retain
41	ponderosa pine	*Pinus ponderosa*	36	16	F	self-correcting lean	retain
42	ponderosa pine	*Pinus ponderosa*	16	16	F	poor crown structure	retain
43	Douglas-fir	*Pseudotsuga menziesii*	20	18	G	lower trunk wound on north face	retain
44	Oregon white oak	*Quercus garryana*	12,26	40	F	poor structure	retain
45	Douglas-fir	*Pseudotsuga menziesii*	20	14	F	reduced vigor	retain
46	ponderosa pine	*Pinus ponderosa*	38	26	G		retain
47	Douglas-fir	*Pseudotsuga menziesii*	16	16	F	some branch dieback	retain
48	Douglas-fir	*Pseudotsuga menziesii*	22	22	F		retain
49	Douglas-fir	*Pseudotsuga menziesii*	32	22	G	few dead branches with decay	retain
50	Douglas-fir	*Pseudotsuga menziesii*	26	20	G	dense group	retain
51	Douglas-fir	*Pseudotsuga menziesii*	12	10	P	dense group, suppressed	retain
52	ponderosa pine	*Pinus ponderosa*	32	22	G	dense group	retain
53	Douglas-fir	*Pseudotsuga menziesii*	25	18	F	dense group, intermediate crown class	retain
54	Douglas-fir	*Pseudotsuga menziesii*	32	22	F	dense group, moderate structure	retain
55	willow	*Salix* spp.	8	10	G	street tree	retain
56	willow	*Salix* spp.	9	12	G	street tree, moderate structure, few dead branches in upper crown	retain
57	willow	*Salix* spp.	8	11	G	street tree, moderate structure	retain
58	willow	*Salix* spp.	8	10	G	street tree	retain
59	willow	*Salix* spp.	7	8	G	street tree	retain
60	willow	*Salix* spp.	8	9	G	street tree	retain
61	willow	*Salix* spp.	8	10	G	street tree	retain
62	willow	*Salix* spp.	7	4	P	street tree, substantial dieback, not viable	remove
63	black cottonwood	*Populus trichocarpa*	10	12	F	natural regeneration	remove

[1]**DBH** is tree diameter measured at 4.5-feet above the ground level in inches; multiple trunks splitting below DBH are measured separately and individual trunk measurements are separated by a comma, except multiple trunks of the same size are indicated with an asterisk (quantity x size); [2]**C-Rad** is the average crown radius measured in feet; [3]**Cond** is an arborist assigned rating to generally describe the condition of individual trees as follows- **D**ead; **P**oor; **F**air; **G**ood; or **E**xcellent Condition.

Sea-Tac Lighting & Controls, LLC
4439 S. 134th Place Bld. E
Tukwila WA 98168
Phone: (206) 575-6865
Fax:

Date: May 5, 2017

Job Name
DWFRITZ Renovation
SEATAC-WWA17-36040
wILSONVILLE WA

Bid Date
May 5, 2017

Submittal Date
May 5, 2017

Architect:
Lance Mueller & Assoc. - Seattle
130 Lakeside Ave.
Seattle WA 98122

Transmittal

Sea-Tac Lighting & Controls, LLC
4439 S. 134th Place Bld. E
Tukwila WA 98168
Phone: (206) 575-6865
From: Jake Pack

Project **DWFRITZ Renovation**
Quote# SEATAC-WWA17-36040
Location wILSONVILLE WA
Contact:

ATTACHED WE ARE SENDING YOU 1 COPY OF THE FOLLOWING ITEM:

☐ Drawings ☐ Specifications Other:
☐ Prints ☐ Information
☐ Plans ☐ Submittals

THESE ARE TRANSMITTED FOR:

☐ Prior Approval ☐ Resubmittal for Approval ☐ Record
☐ Approval ☐ Corrections Bids due on:
☐ Approval as Submitted ☐ Your Use Other:
☐ Approval as Noted ☐ Review and Comment

Type	MFG	Part
P0	Tech Lighting	700OCTUR12SCIUNV830C
P1	Visionaire Lighting, LLC	VMX-1-T3-32LC-5-4K-UNV
P2	Visionaire Lighting, LLC	VMX-1-T4-96LC-7-4K-UNV
P3	Visionaire Lighting, LLC	VMX-1-T3-64LC-7-4K-UNV
P4	Visionaire Lighting, LLC	VMX-1-T4-96LC-7-4K-UNV
P5	Visionaire Lighting, LLC	VMX-1-T5W-64LC-7-4K-UNV
W1	Visionaire Lighting, LLC	VMX-1-T4-64LC-7-4K-UNV
W2	Industrial Lighting Products	WPCM-60WLED-UNIV-4000K
	60W LED Forward Throw Full cutoff Medium Wall Pack 4000K, 120-277V, bronze finish, DLC listed	
W3	Tech Lighting	700WTUR18SCC8401201
L1	Design Plan	RE11005DB

Submitted by Sea-Tac Lighting & Controls, LLC			
	Job Name: DWFRITZ Renovation Architect: Lance Mueller & Assoc. - Seattle (Seattle)	**Catalog Number:** 700OCTUR12SCIUNV830C Notes:	**Type:** **P0** SEATAC-WWA17-36040

TURBO LIGHT COLUMN

TECH LIGHTING

The distinctively modern Turbo cylindrical light column is a powerful outdoor LED solution for general illumination and area lighting. The Turbo light column has symmetric optics with beam spread options 20° or 40° as well as two different lumen output options.

High quality LM80-tested LEDs
for consistent long-life performance and color

Universal 120-277V driver with integral transient surge protection

Outstanding protection against the elements:

- Marine-grade powder coat finishes
- Stainless Steel mounting hardware
- Impact-resistant, UV stabilized frosted acrylic lensing

Beam spread options, 20 degree and 40 degree

TURBO COLUMN
shown in bronze

TURBO COLUMN
shown in charcoal

SPECIFICATIONS

DELIVERED LUMENS	2100 or 4517
WATTS	28 or 60
VOLTAGE	Universal 120-277V, with integral transient 2.5kV surge protection (driver)
SECONDARY SURGE PROTECTOR	10kA
DIMMING	0-10
LIGHT DISTRIBUTION	Symmetric
OPTICS	20° or 40°
MOUNTING OPTIONS	Bolt
PERFORMANCE OPTIONS	Photocontrol / In-line Fuse
CCT	3000K or 4000K
CRI	80
COLOR BINING	3 Step
BUG RATING	B1-U2-G0
DARK SKY	Compliant
WET LISTED	IP65
GENERAL LISTING	ETL, Title 24
START TEMP	-30°C
FIELD SERVICEABLE LED	Yes
CONSTRUCTION	Aluminum
HARDWARE	Stainless Steel
FINISH	Marine Grade Powder Coat
LED LIFETIME	L70; 70,000 Hours
WARRANTY*	5 Years

* Visit techlighting.com for specific warranty limitations and details.

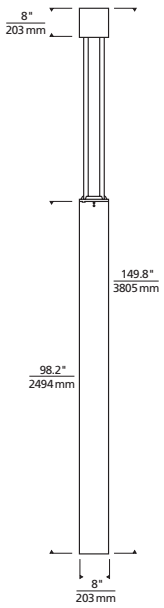
ORDERING INFORMATION

700OCTUR	CRI/CCT	LENGTH	BEAM SPREAD	FINISH	VOLTAGE	OUTPUT	DISTRIBUTION	OPTIONS
	830 80 CRI, 3000K **840** 80 CRI, 4000K	**12** 12'	**20** 20° NARROW **40** 40° WIDE	**Z** BRONZE **H** CHARCOAL	**UNV** 120V–277V	**1** 55W / 3800 LUMENS **2** 25W / 1800 LUMENS	**S** SYMMETRIC	NONE **PC** BUTTON PHOTOCONTROL **LF** IN-LINE FUSE **PCLF** BUTTON PHOTOCONTROL & IN-LINE FUSE

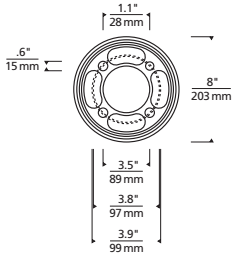
Submitted by Sea-Tac Lighting & Controls, LLC			
	Job Name: DWFRITZ Renovation Architect: Lance Mueller & Assoc. - Seattle (Seattle)	**Catalog Number:** 700OCTUR12SCIUNV830C Notes:	**Type:** **P0** SEATAC-WWA17-36040

TURBO LIGHT COLUMN

TECH LIGHTING



Turbo Column



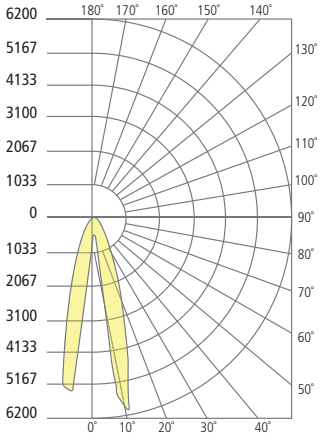
Anchor Plate Bolt Pattern

PHOTOMETRICS*

*For latest photometrics, please visit www. techlighting.com/OUTDOOR

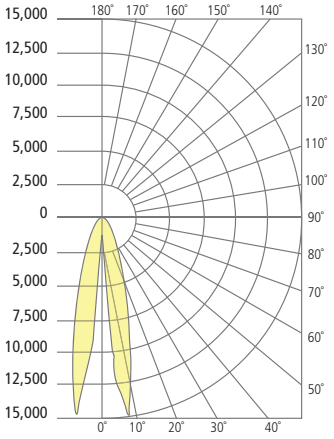
TURBO COLUMN 20° LOW OUTPUT

Total Lumen Output:	2100
Total Power:	28
Luminaire Efficacy:	75
Color Temp:	4000K
CRI:	80+
BUG Rating:	B1-U2-G0



TURBO COLUMN 40° HIGH OUTPUT

Total Lumen Output:	4517
Total Power:	60.4
Luminaire Efficacy:	75
Color Temp:	4000K
CRI:	80+
BUG Rating:	B1-U2-G0



PROJECT INFO

FIXTURE TYPE & QUANTITY

JOB NAME & INFO

NOTES

TECH LIGHTING

GENERATION BRANDS

7400 Linder Avenue, Skokie, Illinois 60077
T 847.410.4400 F 847.410.4500

Submitted by Sea-Tac Lighting & Controls, LLC

Job Name:
DWFRITZ Renovation
Architect: Lance Mueller & Assoc. - Seattle (Seattle)

Catalog Number:
VMX-1-T3-32LC-5-4K-UNV

Notes:

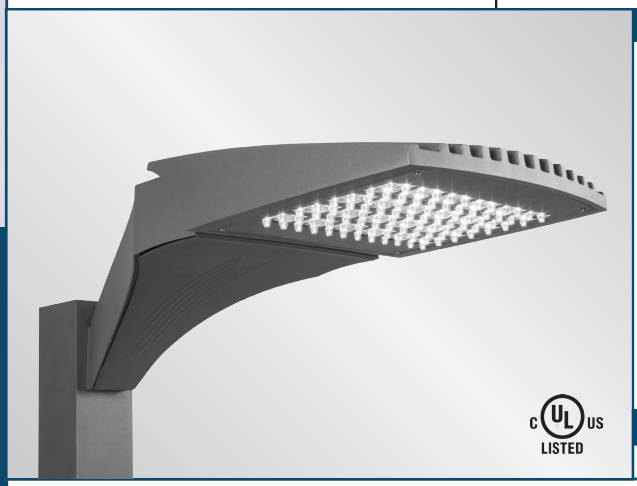
Type:
P1

SEATAC-WWA17-36040

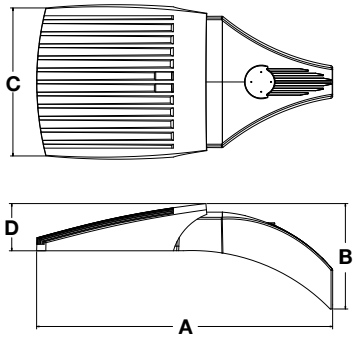
VMX LED

Project Name:	Catalog Number:	Type

AREA



Dimensional Drawings



Fixture	A	B	C	D	Max. Watts	Lbs
VMX-1	29”	10.75”	15.5”	4”	214	49

The new VMX LED Series offers clean, functional styling that is defined by its sleek low profile design and rugged construction. It combines LED performance and advanced LED thermal management technology and provides outdoor lighting that is both energy efficient and aesthetically pleasing.

The LED’s performance and the driver’s life are maximized by enclosing them in two separate cast aluminum housings. Easy tool-less access for mounting and maintenance.

The LED light assemblies come with 32 to 96 LEDs. Seven optical distribution patterns are available. Choose between 3000, 4000 or 5000 Kelvin temperature of the LEDs.

A durable polyester powder coat finish is guaranteed for five years; and is available in standard or custom colors.

The VMX LED series is an exceptional choice for commercial parking lots, office complexes, architectural projects, and other general lighting projects.

Model	Optics	Source	Current	Kelvin	Voltage	Mounting	Finish	Options
VMX-1	Type I **(T1)** Type II **(T2)** Type III **(T3)** Type IV **(T4)** Type IV-A **(T4A)** Type V **(T5)** Type V-W **(T5W)**	# of LEDs 32 **(32LC)** 64 **(64LC)** 96 **(96LC)** *Not available in 1000mA	mA 350 **(3)** 530 **(5)** 700 **(7)** *1000 **(10)** *Not available in 96LC	3000K *Warm white **(3K)** 4000K *Neutral white **(4K)** 5000K *Cool white **(5K)**	120-277 *Universal voltage **(UNV)** 480* **(5)** 347* **(8)** *347V & 480V no available in 32LC 350mA	Arm Mount **(AM)** Wall Mount *Cast Wall Plate (BAWP) to be ordered separately **(WM)** Round Pole Plate Adaptors (RPP) are to be ordered separately. VMX DRILL DIAGRAM *UPMA to be ordered separately	Bronze **(BZ)** Black **(BK)** Smooth Black **(SBK)** White **(WH)** Smooth White **(SWH)** Graphite **(GP)** Grey **(GY)** Silver Metallic **(SL)** Custom Color **(CC)**	Photocell & Receptacle *Specify voltage **(PCR120) (PCR208) (PCR240) (PCR277)** Photo Receptacle **(PER)** *With shorting cap Round Pole Plate Adaptor For 3”Ø Pole **(RPP3)** For 4”Ø Pole **(RPP4)** For 5”Ø Pole **(RPP5)** Cast Wall Plate **(BAWP)** 0-10v Dimming Driver No Controls **(DIM)** Motion Sensor *Works with FSP-211 **(WSC-8)** 8’ Mounting Height **(WSC-20)** 9-20’ Mounting Height **(WSC-40)** 21-40’ Mounting Height This option will require(1) FSIR 100 remote for programing Wireless Control Consult Factory **(WC)** Universal Pole Mount Adaptor **(UPMA)** Cutoff Louver Shield **(CLS)**

VISIONAIRE LIGHTING
Performance In A Whole New Light®

Submitted by Sea-Tac Lighting & Controls, LLC			
	Job Name: DWFRITZ Renovation Architect: Lance Mueller & Assoc. - Seattle (Seattle)	**Catalog Number:** VMX-1-T3-32LC-5-4K-UNV Notes:	**Type:** **P1** SEATAC-WWA17-36040

VMX LED

Heatsink
• Cast aluminum heatsink with integral cooling fins for thermal management.

Mounting Arm/Driver Compartment
•Durable two-piece die cast aluminum driver compartment utilizes a tool-less push button latch for ease of maintenance and sealed with a one-piece silicone gasket.

Thermal Management
• The VMX series provides excellent thermal management by mounting the LEDs to the substantial heat sink of the housing. This enables the Luminaire to withstand higher ambient temperatures and driver currents without degrading LED life.
• The L70 test determines the point in an LEDs life when it reaches 70 percent of its initial output. The VMX series LEDs have been determined to last 100,000+ hours in 25° C environments when driven at 350 mA.

Optical System
• The highest lumen output, LEDs are utilized in the VMX series. IES distribution Types I, II, III, IV, IV-A , V and V-W are available. The optical system qualifies as IES full cutoff to restrict light trespass, glare and light pollution.
• CRI values are 70 for 3000K, 70 for 4000K and 70 for 5000K.

Quali-Guard® Finish
• The finish is a Quali-Guard® textured, chemically pretreated through a multiple-stage washer, electrostatically applied, thermoset polyester powder coat finish, with a minimum of 3-5 millimeter thickness. Finish is oven-baked at 400° F to promote maximum adherence and finish hardness. All finishes are available in standard and custom colors.
• Finish is guaranteed for five (5) years.

Electrical Assembly
• The VMX LED series is supplied with a choice of 350, 530, 700 or 1000 mA high-performance LED drivers that accept 120v thru 480v, 50 Hz to 60 Hz, input. Power factor of 90%. Rated for -40°C operations.
• 10 kV surge protector supplied as standard.
• Terminal block supplied as standard.

Warranty
• Five (5) year Limited Warranty on entire system, including finish. For full warranty information, please visit visionairelighting.com.

Options
• Photocell & receptacle
• Photo receptacle
• Round pole plate adapter
• Cast Wall Plate
• 0-10v Dimming Driver
• Motion Sensor
• Wireless Control
• Universal Pole Mount Adaptor
• Cut-Off Louver Shield

Listings
• The VMX Series is cUL Listed
• IP65 Rated
• Powder Coated Tough
• DLC Listed

POWDER COATED TOUGH™ IP65 RATED c UL us LISTED lighting facts DLC QPL LISTED

DesignLights Consortium (DLC) qualified Product. Some configurations of this product family may not be DesignLights Consortium (DLC) listed, please refer to the DLC qualified products list to confirm listed configurations. http://www.designlights.org/

VMX LUMEN DATA Updated Lumen Chart 08.27.15

# LEDs	mA	Type 1	B	U	G	Type 2	B	U	G	Type 3	B	U	G	Type 4	B	U	G	Type 4A	B	U	G	Type 5	B	U	G	Type 5W	B	U	G	Watts
32	350	5134	2	0	2	4557	1	0	2	4777	1	0	1	4612	1	0	1	5141	1	0	1	4950	2	0	1	4837	3	0	1	36
	530	7230	3	0	3	6417	2	0	2	6728	1	0	2	6496	1	0	2	7240	1	0	1	6972	3	0	1	6812	3	0	1	55
	700	9150	3	0	3	8122	2	0	2	8515	1	0	2	8221	2	0	2	9163	2	0	1	8824	3	0	1	8621	3	0	2	74
	1000	12774	3	0	3	11338	2	0	3	11887	2	0	2	11477	2	0	2	12792	2	0	2	12318	3	0	2	12035	4	0	2	115
64	350	9325	3	0	3	8277	2	0	2	8677	1	0	2	8378	2	0	2	9338	2	0	1	8992	3	0	1	8785	3	0	2	71
	530	13197	3	0	3	11714	2	0	3	12281	2	0	2	11857	2	0	2	13216	2	0	2	12726	3	0	2	12434	4	0	2	109
	700	16756	4	0	4	14873	3	0	3	15592	2	0	3	15054	3	0	3	16780	2	0	2	16158	4	0	2	15786	4	0	2	145
	1000	22002	4	0	4	19529	3	0	4	20474	3	0	3	19768	3	0	3	22034	3	0	2	21217	4	0	2	20729	5	0	3	228
96	350	13649	3	0	3	12115	3	0	3	12701	2	0	2	12262	2	0	2	13668	2	0	2	13162	3	0	2	12859	4	0	2	102
	530	19578	4	0	4	17377	3	0	3	18218	2	0	3	17589	3	0	3	19606	3	0	2	18879	4	0	2	18445	4	0	2	163
	700	23343	4	0	4	20719	3	0	4	21722	3	0	3	20972	3	0	3	23376	3	0	3	22510	4	0	2	21992	5	0	3	214

Visit www.visionairelighting.com for up-to-the-minute chart information, including types not listed here.
*For 4000K multiply values by 0.95 *For 3000K multiply values by 0.90

EPA Data						
	0.75	1.47	1.5	2.22	2.1	2.22

19645 Rancho Way Rancho Dominguez, CA 90220
Tel: (310) 512-6480 Fax: (310) 512-6486
www.visionairelighting.com

Submitted by Sea-Tac Lighting & Controls, LLC

Job Name:
DWFRITZ Renovation
Architect: Lance Mueller & Assoc. - Seattle (Seattle)

Catalog Number:
VMX-1-T4-96LC-7-4K-UNV

Notes:

Type:
P2

SEATAC-WWA17-36040

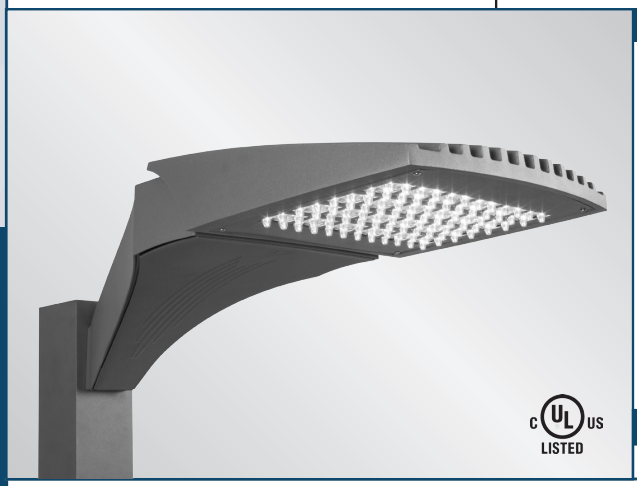
VMX LED

Project Name:

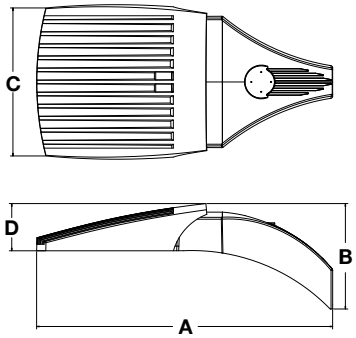
Catalog Number:

Type

AREA



Dimensional Drawings



Fixture	A	B	C	D	Max. Watts	Lbs
VMX-1	29”	10.75”	15.5”	4”	214	49

The new VMX LED Series offers clean, functional styling that is defined by its sleek low profile design and rugged construction. It combines LED performance and advanced LED thermal management technology and provides outdoor lighting that is both energy efficient and aesthetically pleasing.

The LED’s performance and the driver’s life are maximized by enclosing them in two separate cast aluminum housings. Easy tool-less access for mounting and maintenance.

The LED light assemblies come with 32 to 96 LEDs. Seven optical distribution patterns are available. Choose between 3000, 4000 or 5000 Kelvin temperature of the LEDs.

A durable polyester powder coat finish is guaranteed for five years; and is available in standard or custom colors.

The VMX LED series is an exceptional choice for commercial parking lots, office complexes, architectural projects, and other general lighting projects.

Model	Optics	Source	Current	Kelvin	Voltage	Mounting	Finish	Options
VMX-1	Type I **(T1)** Type II **(T2)** Type III **(T3)** Type IV **(T4)** Type IV-A **(T4A)** Type V **(T5)** Type V-W **(T5W)**	# of LEDs 32 **(32LC)** 64 **(64LC)** 96 **(96LC)** *Not available in 1000mA	mA 350 **(3)** 530 **(5)** 700 **(7)** *1000 **(10)** *Not available in 96LC	3000K *Warm white **(3K)** 4000K *Neutral white **(4K)** 5000K *Cool white **(5K)**	120-277 *Universal voltage **(UNV)** 480* **(5)** 347* **(8)** *347V & 480V no available in 32LC 350mA	Arm Mount **(AM)** Wall Mount *Cast Wall Plate (BAWP) to be ordered separately **(WM)** Round Pole Plate Adaptors (RPP) are to be ordered separately. VMX DRILL DIAGRAM *UPMA to be ordered separately	Bronze **(BZ)** Black **(BK)** Smooth Black **(SBK)** White **(WH)** Smooth White **(SWH)** Graphite **(GP)** Grey **(GY)** Silver Metallic **(SL)** Custom Color **(CC)**	Photocell & Receptacle *Specify voltage **(PCR120) (PCR208) (PCR240) (PCR277)** Photo Receptacle **(PER)** *With shorting cap Round Pole Plate Adaptor For 3”Ø Pole **(RPP3)** For 4”Ø Pole **(RPP4)** For 5”Ø Pole **(RPP5)** Cast Wall Plate **(BAWP)** 0-10v Dimming Driver No Controls **(DIM)** Motion Sensor *Works with FSP-211 **(WSC-8)** 8’ Mounting Height **(WSC-20)** 9-20’ Mounting Height **(WSC-40)** 21-40’ Mounting Height This option will require(1) FSIR 100 remote for programing Wireless Control Consult Factory **(WC)** Universal Pole Mount Adaptor **(UPMA)** Cutoff Louver Shield **(CLS)**

VISIONAIRE LIGHTING
Performance In A Whole New Light®

Submitted by Sea-Tac Lighting & Controls, LLC			
	Job Name: DWFRITZ Renovation Architect: Lance Mueller & Assoc. - Seattle (Seattle)	**Catalog Number:** VMX-1-T4-96LC-7-4K-UNV Notes:	**Type:** **P2** SEATAC-WWA17-36040

VMX LED

Heatsink
• Cast aluminum heatsink with integral cooling fins for thermal management.

Mounting Arm/Driver Compartment
•Durable two-piece die cast aluminum driver compartment utilizes a tool-less push button latch for ease of maintenance and sealed with a one-piece silicone gasket.

Thermal Management
• The VMX series provides excellent thermal management by mounting the LEDs to the substantial heat sink of the housing. This enables the Luminaire to withstand higher ambient temperatures and driver currents without degrading LED life.
• The L70 test determines the point in an LEDs life when it reaches 70 percent of its initial output. The VMX series LEDs have been determined to last 100,000+ hours in 25° C environments when driven at 350 mA.

Optical System
• The highest lumen output, LEDs are utilized in the VMX series. IES distribution Types I, II, III, IV, IV-A , V and V-W are available. The optical system qualifies as IES full cutoff to restrict light trespass, glare and light pollution.
• CRI values are 70 for 3000K, 70 for 4000K and 70 for 5000K.

Quali-Guard® Finish
• The finish is a Quali-Guard® textured, chemically pretreated through a multiple-stage washer, electrostatically applied, thermoset polyester powder coat finish, with a minimum of 3-5 millimeter thickness. Finish is oven-baked at 400° F to promote maximum adherence and finish hardness. All finishes are available in standard and custom colors.
• Finish is guaranteed for five (5) years.

Electrical Assembly
• The VMX LED series is supplied with a choice of 350, 530, 700 or 1000 mA high-performance LED drivers that accept 120v thru 480v, 50 Hz to 60 Hz, input. Power factor of 90%. Rated for -40°C operations.
• 10 kV surge protector supplied as standard.
• Terminal block supplied as standard.

Warranty
• Five (5) year Limited Warranty on entire system, including finish. For full warranty information, please visit visionairelighting.com.

Options
• Photocell & receptacle
• Photo receptacle
• Round pole plate adapter
• Cast Wall Plate
• 0-10v Dimming Driver
• Motion Sensor
• Wireless Control
• Universal Pole Mount Adaptor
• Cut-Off Louver Shield

Listings
• The VMX Series is cUL Listed
• IP65 Rated
• Powder Coated Tough
• DLC Listed

POWDER COATED TOUGH™ IP65 RATED c UL us LISTED lighting facts DLC QPL LISTED

DesignLights Consortium (DLC) qualified Product. Some configurations of this product family may not be DesignLights Consortium (DLC) listed, please refer to the DLC qualified products list to confirm listed configurations. http://www.designlights.org/

AREA

VMX LUMEN DATA Updated Lumen Chart 08.27.15

# LEDs	mA	Type 1	B	U	G	Type 2	B	U	G	Type 3	B	U	G	Type 4	B	U	G	Type 4A	B	U	G	Type 5	B	U	G	Type 5W	B	U	G	Watts
32	350	5134	2	0	2	4557	1	0	2	4777	1	0	1	4612	1	0	1	5141	1	0	1	4950	2	0	1	4837	3	0	1	36
	530	7230	3	0	3	6417	2	0	2	6728	1	0	2	6496	1	0	2	7240	1	0	1	6972	3	0	1	6812	3	0	1	55
	700	9150	3	0	3	8122	2	0	2	8515	1	0	2	8221	2	0	2	9163	2	0	1	8824	3	0	1	8621	3	0	2	74
	1000	12774	3	0	3	11338	2	0	3	11887	2	0	2	11477	2	0	2	12792	2	0	2	12318	3	0	2	12035	4	0	2	115
64	350	9325	3	0	3	8277	2	0	2	8677	1	0	2	8378	2	0	2	9338	2	0	1	8992	3	0	1	8785	3	0	2	71
	530	13197	3	0	3	11714	2	0	3	12281	2	0	2	11857	2	0	2	13216	2	0	2	12726	3	0	2	12434	4	0	2	109
	700	16756	4	0	4	14873	3	0	3	15592	2	0	3	15054	3	0	3	16780	2	0	2	16158	4	0	2	15786	4	0	2	145
	1000	22002	4	0	4	19529	3	0	4	20474	3	0	3	19768	3	0	3	22034	3	0	2	21217	4	0	2	20729	5	0	3	228
96	350	13649	3	0	3	12115	3	0	3	12701	2	0	2	12262	2	0	2	13668	2	0	2	13162	3	0	2	12859	4	0	2	102
	530	19578	4	0	4	17377	3	0	3	18218	2	0	3	17589	3	0	3	19606	3	0	2	18879	4	0	2	18445	4	0	2	163
	700	23343	4	0	4	20719	3	0	4	21722	3	0	3	20972	3	0	3	23376	3	0	3	22510	4	0	2	21992	5	0	3	214

Visit www.visionairelighting.com for up-to-the-minute chart information, including types not listed here.
*For 4000K multiply values by 0.95 *For 3000K multiply values by 0.90

EPA Data						
	0.75	1.47	1.5	2.22	2.1	2.22

19645 Rancho Way Rancho Dominguez, CA 90220
Tel: (310) 512-6480 Fax: (310) 512-6486
www.visionairelighting.com

Submitted by Sea-Tac Lighting & Controls, LLC

Job Name:
DWFRITZ Renovation
Architect: Lance Mueller & Assoc. - Seattle (Seattle)

Catalog Number:
VMX-1-T3-64LC-7-4K-UNV

Notes:

Type:
P3

SEATAC-WWA17-36040

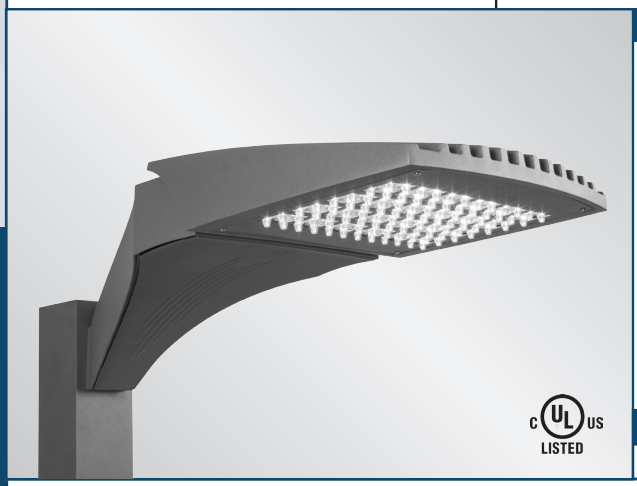
VMX LED

Project Name:

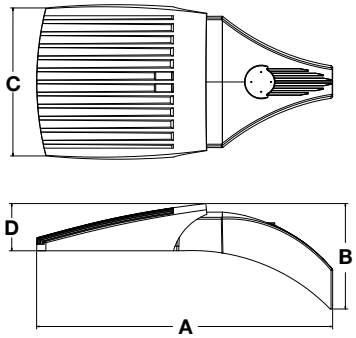
Catalog Number:

Type

AREA



Dimensional Drawings



Fixture	A	B	C	D	Max. Watts	Lbs
VMX-1	29”	10.75”	15.5”	4”	214	49

The new VMX LED Series offers clean, functional styling that is defined by its sleek low profile design and rugged construction. It combines LED performance and advanced LED thermal management technology and provides outdoor lighting that is both energy efficient and aesthetically pleasing.

The LED’s performance and the driver’s life are maximized by enclosing them in two separate cast aluminum housings. Easy tool-less access for mounting and maintenance.

The LED light assemblies come with 32 to 96 LEDs. Seven optical distribution patterns are available. Choose between 3000, 4000 or 5000 Kelvin temperature of the LEDs.

A durable polyester powder coat finish is guaranteed for five years; and is available in standard or custom colors.

The VMX LED series is an exceptional choice for commercial parking lots, office complexes, architectural projects, and other general lighting projects.

Model	Optics	Source	Current	Kelvin	Voltage	Mounting	Finish	Options
VMX-1	Type I **(T1)** Type II **(T2)** Type III **(T3)** Type IV **(T4)** Type IV-A **(T4A)** Type V **(T5)** Type V-W **(T5W)**	# of LEDs 32 **(32LC)** 64 **(64LC)** 96 **(96LC)** *Not available in 1000mA	mA 350 **(3)** 530 **(5)** 700 **(7)** *1000 **(10)** *Not available in 96LC	3000K *Warm white **(3K)** 4000K *Neutral white **(4K)** 5000K *Cool white **(5K)**	120-277 *Universal voltage **(UNV)** 480* **(5)** 347* **(8)** *347V & 480V no available in 32LC 350mA	Arm Mount **(AM)** Wall Mount *Cast Wall Plate (BAWP) to be ordered separately **(WM)** Round Pole Plate Adaptors (RPP) are to be ordered separately. VMX DRILL DIAGRAM *UPMA to be ordered separately	Bronze **(BZ)** Black **(BK)** Smooth Black **(SBK)** White **(WH)** Smooth White **(SWH)** Graphite **(GP)** Grey **(GY)** Silver Metallic **(SL)** Custom Color **(CC)**	Photocell & Receptacle *Specify voltage **(PCR120) (PCR208) (PCR240) (PCR277)** Photo Receptacle **(PER)** *With shorting cap Round Pole Plate Adaptor For 3”Ø Pole **(RPP3)** For 4”Ø Pole **(RPP4)** For 5”Ø Pole **(RPP5)** Cast Wall Plate **(BAWP)** 0-10v Dimming Driver No Controls **(DIM)** Motion Sensor *Works with FSP-211 **(WSC-8)** 8’ Mounting Height **(WSC-20)** 9-20’ Mounting Height **(WSC-40)** 21-40’ Mounting Height This option will require(1) FSIR 100 remote for programing Wireless Control Consult Factory **(WC)** Universal Pole Mount Adaptor **(UPMA)** Cutoff Louver Shield **(CLS)**

VISIONAIRE LIGHTING
Performance In A Whole New Light®

Submitted by Sea-Tac Lighting & Controls, LLC			
	Job Name: DWFRITZ Renovation Architect: Lance Mueller & Assoc. - Seattle (Seattle)	**Catalog Number:** VMX-1-T3-64LC-7-4K-UNV Notes:	**Type:** **P3** SEATAC-WWA17-36040

VMX LED

Heatsink
• Cast aluminum heatsink with integral cooling fins for thermal management.

Mounting Arm/Driver Compartment
•Durable two-piece die cast aluminum driver compartment utilizes a tool-less push button latch for ease of maintenance and sealed with a one-piece silicone gasket.

Thermal Management
• The VMX series provides excellent thermal management by mounting the LEDs to the substantial heat sink of the housing. This enables the Luminaire to withstand higher ambient temperatures and driver currents without degrading LED life.
• The L70 test determines the point in an LEDs life when it reaches 70 percent of its initial output. The VMX series LEDs have been determined to last 100,000+ hours in 25° C environments when driven at 350 mA.

Optical System
• The highest lumen output, LEDs are utilized in the VMX series. IES distribution Types I, II, III, IV, IV-A , V and V-W are available. The optical system qualifies as IES full cutoff to restrict light trespass, glare and light pollution.
• CRI values are 70 for 3000K, 70 for 4000K and 70 for 5000K.

Quali-Guard® Finish
• The finish is a Quali-Guard® textured, chemically pretreated through a multiple-stage washer, electrostatically applied, thermoset polyester powder coat finish, with a minimum of 3-5 millimeter thickness. Finish is oven-baked at 400° F to promote maximum adherence and finish hardness. All finishes are available in standard and custom colors.
• Finish is guaranteed for five (5) years.

Electrical Assembly
• The VMX LED series is supplied with a choice of 350, 530, 700 or 1000 mA high-performance LED drivers that accept 120v thru 480v, 50 Hz to 60 Hz, input. Power factor of 90%. Rated for -40°C operations.
• 10 kV surge protector supplied as standard.
• Terminal block supplied as standard.

Warranty
• Five (5) year Limited Warranty on entire system, including finish. For full warranty information, please visit visionairelighting.com.

Options
• Photocell & receptacle
• Photo receptacle
• Round pole plate adapter
• Cast Wall Plate
• 0-10v Dimming Driver
• Motion Sensor
• Wireless Control
• Universal Pole Mount Adaptor
• Cut-Off Louver Shield

Listings
• The VMX Series is cUL Listed
• IP65 Rated
• Powder Coated Tough
• DLC Listed

POWDER COATED TOUGH™ IP65 RATED c UL us LISTED lighting facts DLC QPL LISTED

DesignLights Consortium (DLC) qualified Product. Some configurations of this product family may not be DesignLights Consortium (DLC) listed, please refer to the DLC qualified products list to confirm listed configurations. http://www.designlights.org/

VMX LUMEN DATA Updated Lumen Chart 08.27.15

# LEDs	mA	Type 1	B	U	G	Type 2	B	U	G	Type 3	B	U	G	Type 4	B	U	G	Type 4A	B	U	G	Type 5	B	U	G	Type 5W	B	U	G	Watts
32	350	5134	2	0	2	4557	1	0	2	4777	1	0	1	4612	1	0	1	5141	1	0	1	4950	2	0	1	4837	3	0	1	36
	530	7230	3	0	3	6417	2	0	2	6728	1	0	2	6496	1	0	2	7240	1	0	1	6972	3	0	1	6812	3	0	1	55
	700	9150	3	0	3	8122	2	0	2	8515	1	0	2	8221	2	0	2	9163	2	0	1	8824	3	0	1	8621	3	0	2	74
	1000	12774	3	0	3	11338	2	0	3	11887	2	0	2	11477	2	0	2	12792	2	0	2	12318	3	0	2	12035	4	0	2	115
64	350	9325	3	0	3	8277	2	0	2	8677	1	0	2	8378	2	0	2	9338	2	0	1	8992	3	0	1	8785	3	0	2	71
	530	13197	3	0	3	11714	2	0	3	12281	2	0	2	11857	2	0	2	13216	2	0	2	12726	3	0	2	12434	4	0	2	109
	700	16756	4	0	4	14873	3	0	3	15592	2	0	3	15054	3	0	3	16780	2	0	2	16158	4	0	2	15786	4	0	2	145
	1000	22002	4	0	4	19529	3	0	4	20474	3	0	3	19768	3	0	3	22034	3	0	2	21217	4	0	2	20729	5	0	3	228
96	350	13649	3	0	3	12115	3	0	3	12701	2	0	2	12262	2	0	2	13668	2	0	2	13162	3	0	2	12859	4	0	2	102
	530	19578	4	0	4	17377	3	0	3	18218	2	0	3	17589	3	0	3	19606	3	0	2	18879	4	0	2	18445	4	0	2	163
	700	23343	4	0	4	20719	3	0	4	21722	3	0	3	20972	3	0	3	23376	3	0	3	22510	4	0	2	21992	5	0	3	214

Visit www.visionairelighting.com for up-to-the-minute chart information, including types not listed here.
*For 4000K multiply values by 0.95 *For 3000K multiply values by 0.90

EPA Data

					
0.75	1.47	1.5	2.22	2.1	2.22

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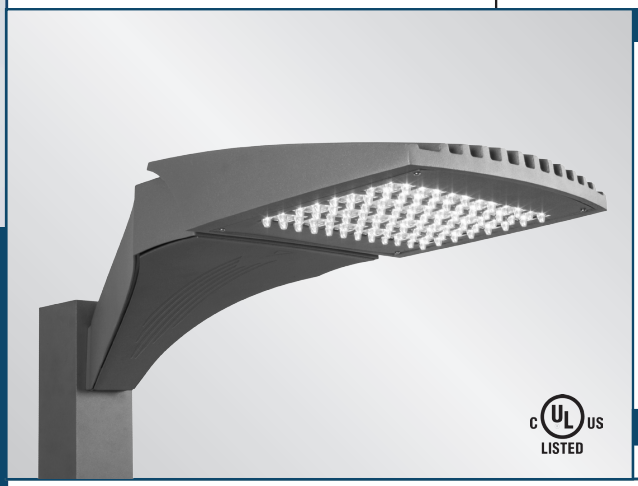
Submitted by Sea-Tac Lighting & Controls, LLC		
Job Name: DWFRITZ Renovation Architect: Lance Mueller & Assoc. - Seattle (Seattle)	**Catalog Number:** VMX-1-T4-96LC-7-4K-UNV Notes:	**Type:** **P4** SEATAC-WWA17-36040

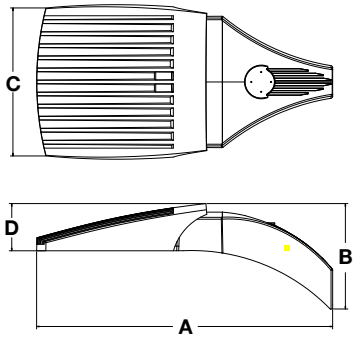
VMX LED

Project Name:	Catalog Number:	Type

AREA



Dimensional Drawings



Fixture	A	B	C	D	Max. Watts	Lbs
VMX-1	29”	10.75”	15.5”	4”	214	49

The new VMX LED Series offers clean, functional styling that is defined by its sleek low profile design and rugged construction. It combines LED performance and advanced LED thermal management technology and provides outdoor lighting that is both energy efficient and aesthetically pleasing.

The LED’s performance and the driver’s life are maximized by enclosing them in two separate cast aluminum housings. Easy tool-less access for mounting and maintenance.

The LED light assemblies come with 32 to 96 LEDs. Seven optical distribution patterns are available. Choose between 3000, 4000 or 5000 Kelvin temperature of the LEDs.

A durable polyester powder coat finish is guaranteed for five years; and is available in standard or custom colors.

The VMX LED series is an exceptional choice for commercial parking lots, office complexes, architectural projects, and other general lighting projects.

Model	Optics	Source	Current	Kelvin	Voltage	Mounting	Finish	Options
VMX-1	Type I **(T1)** Type II **(T2)** Type III **(T3)** Type IV **(T4)** Type IV-A **(T4A)** Type V **(T5)** Type V-W **(T5W)**	# of LEDs 32 **(32LC)** 64 **(64LC)** 96 **(96LC)** *Not available in 1000mA	mA 350 **(3)** 530 **(5)** 700 **(7)** *1000 **(10)** *Not available in 96LC	3000K *Warm white **(3K)** 4000K *Neutral white **(4K)** 5000K *Cool white **(5K)**	120-277 *Universal voltage **(UNV)** 480* **(5)** 347* **(8)** *347V & 480V no available in 32LC 350mA	Arm Mount **(AM)** Wall Mount *Cast Wall Plate (BAWP) to be ordered separately **(WM)** Round Pole Plate Adaptors (RPP) are to be ordered separately. VMX DRILL DIAGRAM *UPMA to be ordered separately	Bronze **(BZ)** Black **(BK)** Smooth Black **(SBK)** White **(WH)** Smooth White **(SWH)** Graphite **(GP)** Grey **(GY)** Silver Metallic **(SL)** Custom Color **(CC)**	Photocell & Receptacle *Specify voltage **(PCR120) (PCR208) (PCR240) (PCR277)** Photo Receptacle **(PER)** *With shorting cap Round Pole Plate Adaptor For 3”Ø Pole **(RPP3)** For 4”Ø Pole **(RPP4)** For 5”Ø Pole **(RPP5)** Cast Wall Plate **(BAWP)** 0-10v Dimming Driver No Controls **(DIM)** Motion Sensor *Works with FSP-211 **(WSC-8)** 8’ Mounting Height **(WSC-20)** 9-20’ Mounting Height **(WSC-40)** 21-40’ Mounting Height This option will require(1) FSIR 100 remote for programing Wireless Control Consult Factory **(WC)** Universal Pole Mount Adaptor **(UPMA)** Cutoff Louver Shield **(CLS)**

VISIONAIRE LIGHTING
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Submitted by Sea-Tac Lighting & Controls, LLC			
	Job Name: DWFRITZ Renovation Architect: Lance Mueller & Assoc. - Seattle (Seattle)	**Catalog Number:** VMX-1-T4-96LC-7-4K-UNV Notes:	**Type:** **P4** SEATAC-WWA17-36040

VMX LED

Heatsink
• Cast aluminum heatsink with integral cooling fins for thermal management.

Mounting Arm/Driver Compartment
•Durable two-piece die cast aluminum driver compartment utilizes a tool-less push button latch for ease of maintenance and sealed with a one-piece silicone gasket.

Thermal Management
• The VMX series provides excellent thermal management by mounting the LEDs to the substantial heat sink of the housing. This enables the Luminaire to withstand higher ambient temperatures and driver currents without degrading LED life.
• The L70 test determines the point in an LEDs life when it reaches 70 percent of its initial output. The VMX series LEDs have been determined to last 100,000+ hours in 25° C environments when driven at 350 mA.

Optical System
• The highest lumen output, LEDs are utilized in the VMX series. IES distribution Types I, II, III, IV, IV-A , V and V-W are available. The optical system qualifies as IES full cutoff to restrict light trespass, glare and light pollution.
• CRI values are 70 for 3000K, 70 for 4000K and 70 for 5000K.

Quali-Guard® Finish
• The finish is a Quali-Guard® textured, chemically pretreated through a multiple-stage washer, electrostatically applied, thermoset polyester powder coat finish, with a minimum of 3-5 millimeter thickness. Finish is oven-baked at 400° F to promote maximum adherence and finish hardness. All finishes are available in standard and custom colors.
• Finish is guaranteed for five (5) years.

Electrical Assembly
• The VMX LED series is supplied with a choice of 350, 530, 700 or 1000 mA high-performance LED drivers that accept 120v thru 480v, 50 Hz to 60 Hz, input. Power factor of 90%. Rated for -40°C operations.
• 10 kV surge protector supplied as standard.
• Terminal block supplied as standard.

Warranty
• Five (5) year Limited Warranty on entire system, including finish. For full warranty information, please visit visionairelighting.com.

Options
• Photocell & receptacle
• Photo receptacle
• Round pole plate adapter
• Cast Wall Plate
• 0-10v Dimming Driver
• Motion Sensor
• Wireless Control
• Universal Pole Mount Adaptor
• Cut-Off Louver Shield

Listings
• The VMX Series is cUL Listed
• IP65 Rated
• Powder Coated Tough
• DLC Listed

POWDER COATED TOUGH™ IP65 RATED c UL us LISTED lighting facts DLC QPL LISTED

DesignLights Consortium (DLC) qualified Product. Some configurations of this product family may not be DesignLights Consortium (DLC) listed, please refer to the DLC qualified products list to confirm listed configurations. http://www.designlights.org/

AREA

VMX LUMEN DATA Updated Lumen Chart 08.27.15

# LEDs	mA	Type 1	B	U	G	Type 2	B	U	G	Type 3	B	U	G	Type 4	B	U	G	Type 4A	B	U	G	Type 5	B	U	G	Type 5W	B	U	G	Watts
32	350	5134	2	0	2	4557	1	0	2	4777	1	0	1	4612	1	0	1	5141	1	0	1	4950	2	0	1	4837	3	0	1	36
	530	7230	3	0	3	6417	2	0	2	6728	1	0	2	6496	1	0	2	7240	1	0	1	6972	3	0	1	6812	3	0	1	55
	700	9150	3	0	3	8122	2	0	2	8515	1	0	2	8221	2	0	2	9163	2	0	1	8824	3	0	1	8621	3	0	2	74
	1000	12774	3	0	3	11338	2	0	3	11887	2	0	2	11477	2	0	2	12792	2	0	2	12318	3	0	2	12035	4	0	2	115
64	350	9325	3	0	3	8277	2	0	2	8677	1	0	2	8378	2	0	2	9338	2	0	1	8992	3	0	1	8785	3	0	2	71
	530	13197	3	0	3	11714	2	0	3	12281	2	0	2	11857	2	0	2	13216	2	0	2	12726	3	0	2	12434	4	0	2	109
	700	16756	4	0	4	14873	3	0	3	15592	2	0	3	15054	3	0	3	16780	2	0	2	16158	4	0	2	15786	4	0	2	145
	1000	22002	4	0	4	19529	3	0	4	20474	3	0	3	19768	3	0	3	22034	3	0	2	21217	4	0	2	20729	5	0	3	228
96	350	13649	3	0	3	12115	3	0	3	12701	2	0	2	12262	2	0	2	13668	2	0	2	13162	3	0	2	12859	4	0	2	102
	530	19578	4	0	4	17377	3	0	3	18218	2	0	3	17589	3	0	3	19606	3	0	2	18879	4	0	2	18445	4	0	2	163
	700	23343	4	0	4	20719	3	0	4	21722	3	0	3	20972	3	0	3	23376	3	0	3	22510	4	0	2	21992	5	0	3	214

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EPA Data						
	0.75	1.47	1.5	2.22	2.1	2.22

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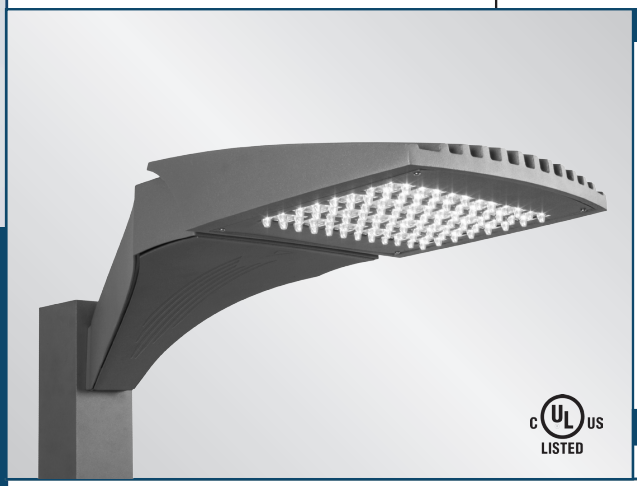
Submitted by Sea-Tac Lighting & Controls, LLC		
Job Name: DWFRITZ Renovation Architect: Lance Mueller & Assoc. - Seattle (Seattle)	**Catalog Number:** VMX-1-T5W-64LC-7-4K-UNV Notes:	**Type:** **P5** SEATAC-WWA17-36040

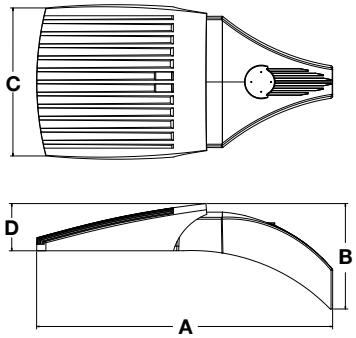
VMX LED

Project Name:	Catalog Number:	Type

AREA



Dimensional Drawings



Fixture	A	B	C	D	Max. Watts	Lbs
VMX-1	29”	10.75”	15.5”	4”	214	49

The new VMX LED Series offers clean, functional styling that is defined by its sleek low profile design and rugged construction. It combines LED performance and advanced LED thermal management technology and provides outdoor lighting that is both energy efficient and aesthetically pleasing.

The LED’s performance and the driver’s life are maximized by enclosing them in two separate cast aluminum housings. Easy tool-less access for mounting and maintenance.

The LED light assemblies come with 32 to 96 LEDs. Seven optical distribution patterns are available. Choose between 3000, 4000 or 5000 Kelvin temperature of the LEDs.

A durable polyester powder coat finish is guaranteed for five years; and is available in standard or custom colors.

The VMX LED series is an exceptional choice for commercial parking lots, office complexes, architectural projects, and other general lighting projects.

Model	Optics	Source	Current	Kelvin	Voltage	Mounting	Finish	Options
VMX-1	Type I **(T1)** Type II **(T2)** Type III **(T3)** Type IV **(T4)** Type IV-A **(T4A)** Type V **(T5)** Type V-W **(T5W)**	# of LEDs 32 **(32LC)** 64 **(64LC)** 96 **(96LC)** *Not available in 1000mA	mA 350 **(3)** 530 **(5)** 700 **(7)** *1000 **(10)** *Not available in 96LC	3000K *Warm white **(3K)** 4000K *Neutral white **(4K)** 5000K *Cool white **(5K)**	120-277 *Universal voltage **(UNV)** 480* **(5)** 347* **(8)** *347V & 480V no available in 32LC 350mA	Arm Mount **(AM)** Wall Mount *Cast Wall Plate (BAWP) to be ordered separately **(WM)** Round Pole Plate Adaptors (RPP) are to be ordered separately. VMX DRILL DIAGRAM *UPMA to be ordered separately	Bronze **(BZ)** Black **(BK)** Smooth Black **(SBK)** White **(WH)** Smooth White **(SWH)** Graphite **(GP)** Grey **(GY)** Silver Metallic **(SL)** Custom Color **(CC)**	Photocell & Receptacle *Specify voltage **(PCR120) (PCR208) (PCR240) (PCR277)** Photo Receptacle **(PER)** *With shorting cap Round Pole Plate Adaptor For 3”Ø Pole **(RPP3)** For 4”Ø Pole **(RPP4)** For 5”Ø Pole **(RPP5)** Cast Wall Plate **(BAWP)** 0-10v Dimming Driver No Controls **(DIM)** Motion Sensor *Works with FSP-211 **(WSC-8)** 8’ Mounting Height **(WSC-20)** 9-20’ Mounting Height **(WSC-40)** 21-40’ Mounting Height This option will require(1) FSIR 100 remote for programing Wireless Control Consult Factory **(WC)** Universal Pole Mount Adaptor **(UPMA)** Cutoff Louver Shield **(CLS)**

VISIONAIRE LIGHTING
Performance In A Whole New Light®

Submitted by Sea-Tac Lighting & Controls, LLC			
	Job Name: DWFRITZ Renovation Architect: Lance Mueller & Assoc. - Seattle (Seattle)	**Catalog Number:** VMX-1-T5W-64LC-7-4K-UNV Notes:	**Type:** **P5** SEATAC-WWA17-36040

VMX LED

Heatsink
• Cast aluminum heatsink with integral cooling fins for thermal management.

Mounting Arm/Driver Compartment
•Durable two-piece die cast aluminum driver compartment utilizes a tool-less push button latch for ease of maintenance and sealed with a one-piece silicone gasket.

Thermal Management
• The VMX series provides excellent thermal management by mounting the LEDs to the substantial heat sink of the housing. This enables the Luminaire to withstand higher ambient temperatures and driver currents without degrading LED life.
• The L70 test determines the point in an LEDs life when it reaches 70 percent of its initial output. The VMX series LEDs have been determined to last 100,000+ hours in 25° C environments when driven at 350 mA.

Optical System
• The highest lumen output, LEDs are utilized in the VMX series. IES distribution Types I, II, III, IV, IV-A , V and V-W are available. The optical system qualifies as IES full cutoff to restrict light trespass, glare and light pollution.
• CRI values are 70 for 3000K, 70 for 4000K and 70 for 5000K.

Quali-Guard® Finish
• The finish is a Quali-Guard® textured, chemically pretreated through a multiple-stage washer, electrostatically applied, thermoset polyester powder coat finish, with a minimum of 3-5 millimeter thickness. Finish is oven-baked at 400° F to promote maximum adherence and finish hardness. All finishes are available in standard and custom colors.
• Finish is guaranteed for five (5) years.

Electrical Assembly
• The VMX LED series is supplied with a choice of 350, 530, 700 or 1000 mA high-performance LED drivers that accept 120v thru 480v, 50 Hz to 60 Hz, input. Power factor of 90%. Rated for -40°C operations.
• 10 kV surge protector supplied as standard.
• Terminal block supplied as standard.

Warranty
• Five (5) year Limited Warranty on entire system, including finish. For full warranty information, please visit visionairelighting.com.

Options
• Photocell & receptacle
• Photo receptacle
• Round pole plate adapter
• Cast Wall Plate
• 0-10v Dimming Driver
• Motion Sensor
• Wireless Control
• Universal Pole Mount Adaptor
• Cut-Off Louver Shield

Listings
• The VMX Series is cUL Listed
• IP65 Rated
• Powder Coated Tough
• DLC Listed

POWDER COATED TOUGH™ IP65 RATED c UL us LISTED lighting facts DLC QPL LISTED

DesignLights Consortium (DLC) qualified Product. Some configurations of this product family may not be DesignLights Consortium (DLC) listed, please refer to the DLC qualified products list to confirm listed configurations. http://www.designlights.org/

AREA

VMX LUMEN DATA Updated Lumen Chart 08.27.15

# LEDs	mA	Type 1	B	U	G	Type 2	B	U	G	Type 3	B	U	G	Type 4	B	U	G	Type 4A	B	U	G	Type 5	B	U	G	Type 5W	B	U	G	Watts
32	350	5134	2	0	2	4557	1	0	2	4777	1	0	1	4612	1	0	1	5141	1	0	1	4950	2	0	1	4837	3	0	1	36
	530	7230	3	0	3	6417	2	0	2	6728	1	0	2	6496	1	0	2	7240	1	0	1	6972	3	0	1	6812	3	0	1	55
	700	9150	3	0	3	8122	2	0	2	8515	1	0	2	8221	2	0	2	9163	2	0	1	8824	3	0	1	8621	3	0	2	74
	1000	12774	3	0	3	11338	2	0	3	11887	2	0	2	11477	2	0	2	12792	2	0	2	12318	3	0	2	12035	4	0	2	115
64	350	9325	3	0	3	8277	2	0	2	8677	1	0	2	8378	2	0	2	9338	2	0	1	8992	3	0	1	8785	3	0	2	71
	530	13197	3	0	3	11714	2	0	3	12281	2	0	2	11857	2	0	2	13216	2	0	2	12726	3	0	2	12434	4	0	2	109
	700	16756	4	0	4	14873	3	0	3	15592	2	0	3	15054	3	0	3	16780	2	0	2	16158	4	0	2	15786	4	0	2	145
	1000	22002	4	0	4	19529	3	0	4	20474	3	0	3	19768	3	0	3	22034	3	0	2	21217	4	0	2	20729	5	0	3	228
96	350	13649	3	0	3	12115	3	0	3	12701	2	0	2	12262	2	0	2	13668	2	0	2	13162	3	0	2	12859	4	0	2	102
	530	19578	4	0	4	17377	3	0	3	18218	2	0	3	17589	3	0	3	19606	3	0	2	18879	4	0	2	18445	4	0	2	163
	700	23343	4	0	4	20719	3	0	4	21722	3	0	3	20972	3	0	3	23376	3	0	3	22510	4	0	2	21992	5	0	3	214

Visit www.visionairelighting.com for up-to-the-minute chart information, including types not listed here.
*For 4000K multiply values by 0.95 *For 3000K multiply values by 0.90

EPA Data						
	0.75	1.47	1.5	2.22	2.1	2.22

19645 Rancho Way Rancho Dominguez, CA 90220
Tel: (310) 512-6480 Fax: (310) 512-6486
www.visionairelighting.com

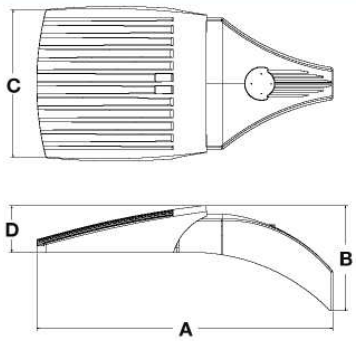
Submitted by Sea-Tac Lighting & Controls, LLC			
	Job Name: DWFRITZ Renovation Architect: Lance Mueller & Assoc. - Seattle (Seattle)	**Catalog Number:** VMX-1-T4-64LC-7-4K-UNV Notes:	**Type:** **W1** SEATAC-WWA17-36040

VMX LED

Project Name:	Catalog Number:	Type

AREA

Dimensional Drawings



Fixture	A	B	C	D	Max. Watts	Lbs
VMX-1	29"	10.75"	15.5"	4"	214	49

The new VMX LED Series offers clean, functional styling that is defined by its sleek low profile design and rugged construction. It combines LED performance and advanced LED thermal management technology and provides outdoor lighting that is both energy efficient and aesthetically pleasing.

The LED's performance and the driver's life are maximized by enclosing them in two separate cast aluminum housings. Easy tool-less access for mounting and maintenance.

The LED light assemblies come with 32 to 96 LEDs. Seven optical distribution patterns are available. Choose between 4000 or 5000 Kelvin temperature of the LEDs.

A durable polyester powder coat finish is guaranteed for five years; and is available in standard or custom colors.

The VMX LED series is an exceptional choice for commercial parking lots, office complexes, architectural projects, and other general lighting projects.

Model	Optics	Source	Current	Kelvin	Voltage	Mounting	Finish	Options
VMX-1	Type II **(T2)** Type III **(T3)** Type IV **(T4)** Type IV-A **(T4A)** Type V **(T5)** Type V-W **(T5W)**	# of LEDs 32 **(32LC)** 64 **(64LC)** 96 **(96LC)** *Not available in 1000mA	mA 350 **(3)** 530 **(5)** 700 **(7)** *1000 **(10)** *Not available in 96LC	4000K *Neutral white **(4K)** 5000K *Cool white **(5K)**	120-277 *Universal voltage **(UNV)** 480* **(5)** 347* **(8)** *347V & 480V no available in 32LC 350mA	Arm Mount **(AM)** Wall Mount *Cast Wall Plate (BAWP) to be ordered separately **(WM)** Round Pole Plate Adaptors (RPP) are to be ordered separately. VMX DRILL DIAGRAM *UPMA to be ordered separately	Bronze **(BZ)** Black **(BK)** Smooth Black **(SBK)** White **(WH)** Smooth White **(SWH)** Graphite **(GP)** Grey **(GY)** Silver Metallic **(SL)** Custom Color **(CC)**	Photocell & Receptacle *Specify voltage **(PCR120) (PCR208) (PCR240) (PCR277)** Photo Receptacle **(PER)** *With shorting cap Round Pole Plate Adaptor For 3"Ø Pole **(RPP3)** For 4"Ø Pole **(RPP4)** For 5"Ø Pole **(RPP5)** Cast Wall Plate **(BAWP)** 0-10v Dimming Driver No Controls **(DIM)** Motion Sensor *Works with FSP-211 **(WSC-8)** 8' Mounting Height **(WSC-20)** 9-20' Mounting Height **(WSC-40)** 21-40' Mounting Height Wireless Control Consult Factory **(WC)** Universal Pole Mount Adaptor **(UPMA)** Cutoff Louver Shield **(LS)**

VISIONAIRE LIGHTING
Performance In A Whole New Light®

Submitted by Sea-Tac Lighting & Controls, LLC			
	Job Name: DWFRITZ Renovation Architect: Lance Mueller & Assoc. - Seattle (Seattle)	**Catalog Number:** VMX-1-T4-64LC-7-4K-UNV Notes:	**Type:** **W1** SEATAC-WWA17-36040

Heatsink
• Cast aluminum heatsink with integral cooling fins for thermal management.

Mounting Arm/Driver Compartment
•Durable two-piece die cast aluminum driver compartment utilizes a tool-less push button latch for ease of maintenance and sealed with a one-piece silicone gasket.

Thermal Management
• The VMX series provides excellent thermal management by mounting the LEDs to the substantial heat sink of the housing. This enables the Luminaire to withstand higher ambient temperatures and driver currents without degrading LED life.
• The L70 test determines the point in an LEDs life when it reaches 70 percent of its initial output. The VMX series LEDs have been determined to last 100,000+ hours in 25° C environments when driven at 350 mA.

Optical System
• The highest lumen output, Evo/C LEDs are utilized in the VMX series. IES distribution Types I, II, III, IV, IV-A , V and V-W are available. The optical system qualifies as IES full cutoff to restrict light trespass, glare and light pollution.
• CRI values are 70 for 4000K and 75 for 5000K.

Quali-Guard® Finish
• The finish is a Quali-Guard® textured, chemically pretreated through a multiple-stage washer, electrostatically applied, thermoset polyester powder coat finish, with a minimum of 3-5 millimeter thickness. Finish is oven-baked at 400° F to promote maximum adherence and finish hardness. All finishes are available in standard and custom colors.
• Finish is guaranteed for five (5) years.

Electrical Assembly
• The VMX LED series is supplied with a choice of 350, 530, 700 or 1000 mA high-performance LED drivers that accept 120v thru 480v, 50 Hz to 60 Hz, input. Power factor of 90%. Rated for -40°C operations.
• 10 kV surge protector supplied as standard.
• Terminal block supplied as standard.

Warranty
• Five (5) year Limited Warranty on entire system, including finish. For full warranty information, please visit visionairelighting.com.

Options
• Photocell & receptacle
• Photo receptacle
• Round pole plate adapter
• Cast Wall Plate
• 0-10v Dimming Driver
• Motion Sensor
• Wireless Control
• Universal Pole Mount Adaptor
• Cut-Off Louver Shield

Listings
• The VMX Series is UL Listed
• DLC Listed
• IP65 Rated
• Powder Coated Tough

POWDER COATED TOUGH™ IP65 RATED c UL us LISTED lighting facts DLC QPL LISTED

DesignLights Consortium (DLC) qualified Product. Some configurations of this product family may not be DesignLights Consortium (DLC) listed, please refer to the DLC qualified products list to confirm listed configurations. http://www.designlights.org/

VMX LUMEN DATA Updated Lumen Chart 08.27.15

# LEDs	mA	Type 1	B	U	G	Type 2	B	U	G	Type 3	B	U	G	Type 4	B	U	G	Type 4A	B	U	G	Type 5	B	U	G	Type 5W	B	U	G	Watts
32	350	5134	2	0	2	4557	1	0	2	4777	1	0	1	4612	1	0	1	5141	1	0	1	4950	2	0	1	4837	3	0	1	36
	530	7230	3	0	3	6417	2	0	2	6728	1	0	2	6496	1	0	2	7240	1	0	1	6972	3	0	1	6812	3	0	1	55
	700	9150	3	0	3	8122	2	0	2	8515	1	0	2	8221	2	0	2	9163	2	0	1	8824	3	0	1	8621	3	0	2	74
	1000	12774	3	0	3	11338	2	0	3	11887	2	0	2	11477	2	0	2	12792	2	0	2	12318	3	0	2	12035	4	0	2	115
64	350	9325	3	0	3	8277	2	0	2	8677	1	0	2	8378	2	0	2	9338	2	0	1	8992	3	0	1	8785	3	0	2	71
	530	13197	3	0	3	11714	2	0	3	12281	2	0	2	11857	2	0	2	13216	2	0	2	12726	3	0	2	12434	4	0	2	109
	700	16756	4	0	4	14873	3	0	3	15592	2	0	3	15054	3	0	3	16780	2	0	2	16158	4	0	2	15786	4	0	2	145
	1000	22002	4	0	4	19529	3	0	4	20474	3	0	3	19768	3	0	3	22034	3	0	2	21217	4	0	2	20729	5	0	3	228
96	350	13649	3	0	3	12115	3	0	3	12701	2	0	2	12262	2	0	2	13668	2	0	2	13162	3	0	2	12859	4	0	2	102
	530	19578	4	0	4	17377	3	0	3	18218	2	0	3	17589	3	0	3	19606	3	0	2	18879	4	0	2	18445	4	0	2	163
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Visit www.visionairelighting.com for up-to-the-minute chart information, including types not listed here.
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0.75	1.47	1.5	2.22	2.1	2.22

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Tel: (310) 512-6480 Fax: (310) 512-6486
www.visionairelighting.com

Submitted by Sea-Tac Lighting & Controls, LLC			
	Job Name: DWFRITZ Renovation Architect: Lance Mueller & Assoc. - Seattle (Seattle)	**Catalog Number:** WPCM-60WLED-UNIV-4000K Notes:	**Type:** **W2** SEATAC-WWA17-36040

Project Name:	
Catalog Number:	Fixture Type:
Volts / Watts:	Lamps / Board:

FULL CUTOFF FORWARD THROW - 60W LED

WALL PACk

REPLACES 175W MH

FEATURES

- Die Cast Aluminum Housing
- Hinged Full Cutoff Front Frame
- ½″ Coin Plugs with O-rings for Conduit & Photocell
- Textured Architectural Bronze Powdercoat Finish Over a Chromate Conversion Coating
- Forward Throw Optic Lens
- Cast-in Template for Mounting Directly Over a 4″ Recessed Outlet Box
- 60W, 5000K (Std)
- ETL Listed for Wet Locations
- Meets Dark Sky Requirements
- Custom Colors Available Upon Request
- DesignLights Consortium® Qualified [2]

LED SYSTEM

Board (CREE Chips)	**4 x 6**
Calculated L_{70} (TM-21)	**134,000 hours** [1]
Delivered Lumens	**5,248 lm**
Total Input Watts	**66.7 W**
Luminaire Efficacy Rating (LER)	**78.7 lm/W**
Correlated Color Temperature (CCT)	**5000 K**
Color Rendering Index (CRI)	**69.1**
Max Ambient Temp	**127°F**
Universal Driver	**120-277 V**

LED System data above based on WPCM-60WLED-UNIV-5000K
[1] LED Lumen Maintenance Estimates based on TM-21 projections for the light source at 25˚C ambient
[2] Specific Configurations Listed on DLC.

SUITABLE APPLICATIONS

- Parking lots
- Buildings
- General area lighting

ORDERING GUIDE

WPCM	60WLED	UNIV	5000K	eg: WPC25WG

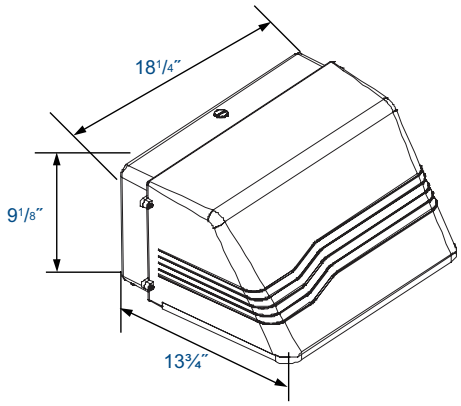
Series	LED	Driver	Color	Options
☐ **WPCM** Full Cutoff Wall Pack	☐ **60WLED** 4x6 Board	☐ **UNIV** 120-277 Driver	☐ **4000K** ☐ **5000K***	☐ **WPC25LG** Clear PC Vandal Resistant Guard ☐ **WPC25WG** Wire Guard, SS Construction ☐ **CORDx** Cord (X = ft) ☐ **DIM** 0-10V Dimmable Driver ☐ **USDC** User Selectable Dimming Control ☐ **PCxxx** Photocell (xxx = Voltage)

*DLC Listed Configuration

Submitted by Sea-Tac Lighting & Controls, LLC			
	Job Name: DWFRITZ Renovation Architect: Lance Mueller & Assoc. - Seattle (Seattle)	**Catalog Number:** WPCM-60WLED-UNIV-4000K Notes:	**Type:** **W2** SEATAC-WWA17-36040

FULL CUTOFF - 60W LED

FORWARD THROW WALL PACK



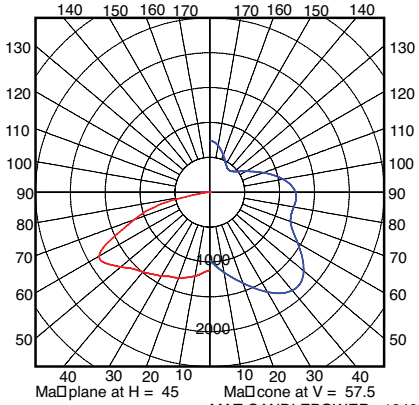
WPCM-60WLED-UNIV

LUMINAIRE OUTPUT = 5064 LMS
120.04 VAC, 554.94 mA, 66.421 W, 0.9971 PF

SUMMARY DATA

HEMISPHERES TESTED:	BOTH
EFFICIENCY (Total):	100.0 %
EFFICIENCY (Down / Up):	100.0 % / 0.0 %
EFFICIENCY (Street / House):	65.9 % / 34.1 %
ROADWAY CLASSIFICATION:	TYPE IV, SHORT
CUTOFF CLASSIFICATION:	FULL CUTOFF
LUMENS/LAMP:	5086.907
NO. OF LAMPS:	1
LUMINOUS OPENING: RECTANGULAR	
Width:	0.46 (Feet)
Length:	0.58
Height:	0.00
INPUT WATTS:	66.4

PLANE AND CONE DIAGRAM

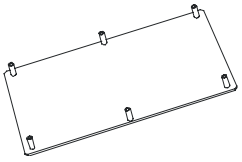


Ma plane at H = 45 Ma cone at V = 57.5
MA CANDLEPOWER: 1840.9

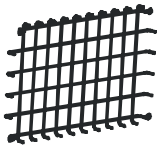
Photometric values based upon tests performed in compliance with LM-79. IES files can be downloaded at www.ilp-inc.com

ACCESSORIES

WPC25GLC



WPC25LG



WPC25WG

Submitted by Sea-Tac Lighting & Controls, LLC			
	Job Name: DWFRITZ Renovation Architect: Lance Mueller & Assoc. - Seattle (Seattle)	**Catalog Number:** 700WTUR18SCC8401201 Notes:	**Type:** **W3** SEATAC-WWA17-36040

TURBO WALL SCONCE

TECH LIGHTING

Offering an inviting and open cylindrical silhouette with decorative fins evenly spaced around the circumference, the Turbo LED wall sconce adds a modern aesthetic to any façade. Mounting options enable the fixture to be mounted in three different height positions relative to the back plate position to meet a variety of installation needs and aesthetic preferences.

High quality LM80-tested LEDs
for consistent long-life performance and color

Outstanding protection against the elements:

- Marine-grade powder coat finishes
- Stainless Steel mounting hardware
- Impact-resistant, UV stabilized frosted acrylic lensing

Three-position mounting option allows variable height adjustment to back plate

SPECIFICATIONS

DELIVERED LUMENS	598
WATTS	15.7
VOLTAGE	Universal 120-277V, with integral transient 2.5kV surge protection (driver)
DIMMING	0-10, ELV
LIGHT DISTRIBUTION	Symmetric
OPTICS	40°
MOUNTING OPTIONS	3-Position Variable Height
PERFORMANCE OPTIONS	Photocontrol / In-Line Fuse / Surge Protector
CCT	3000K or 4000K
CRI	80+
COLOR BINNING	3 Step
BUG RATING	B1-U2-G0
DARK SKY	Compliant
WET LISTED	IP65
GENERAL LISTING	ETL, Title 24
START TEMP	-30°C
FIELD SERVICEABLE LED	Yes
CONSTRUCTION	Aluminum
HARDWARE	Stainless Steel
FINISH	Marine Grade Powder Coat
LED LIFETIME	L70; 70,000 Hours
WARRANTY*	5 Years

* Visit techlighting.com for specific warranty limitations and details.

TURBO WALL
shown in bronze

TURBO WALL
shown in charcoal

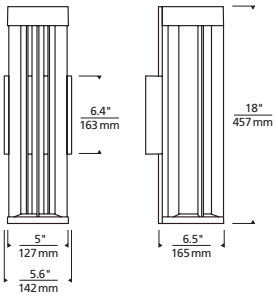
ORDERING INFORMATION

700OWTUR	CRI/CCT	LENGTH	LENS	FINISH	VOLTAGE	DISTRIBUTION	OPTIONS
	830 80 CRI, 3000K **840** 80 CRI, 4000K	**18** 18"	**C** CLEAR FLAT	**Z** BRONZE **H** CHARCOAL	**UNV** 120V–277V	**S** SYMMETRIC	NONE **PC** BUTTON PHOTOCONTROL **LF** IN-LINE FUSE **SP** SURGE PROTECTION **PCLF** BUTTON PHOTOCONTROL & IN-LINE FUSE **PCSP** BUTTON PHOTOCONTROL & SURGE PROTECTION **LFSP** IN-LINE FUSE & SURGE PROTECTION **PCLFSP** BUTTON PHOTOCONTROL, IN-LINE FUSE & SURGE PROTECTION

Submitted by Sea-Tac Lighting & Controls, LLC			
	Job Name: DWFRITZ Renovation Architect: Lance Mueller & Assoc. - Seattle (Seattle)	**Catalog Number:** 700WTUR18SCC8401201 Notes:	**Type:** **W3** SEATAC-WWA17-36040

TURBO WALL SCONCE

TECH LIGHTING



Turbo Sconce

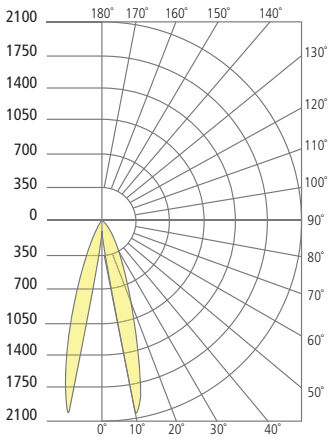
Integrated height adjustment system allows you to customize your fixture position. Low, Mid or High.

PHOTOMETRICS*

*For latest photometrics, please visit www. techlighting.com/OUTDOOR

TURBO WALL

Total Lumen Output:	598
Total Power:	15.7
Luminaire Efficacy:	37.8
Color Temp:	3000K
CRI:	80+
BUG Rating:	B1-U2-G0



PROJECT INFO

FIXTURE TYPE & QUANTITY

JOB NAME & INFO

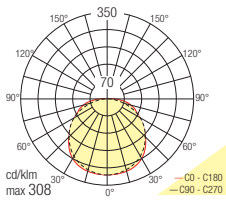
NOTES

TECH LIGHTING
GENERATION BRANDS
7400 Linder Avenue, Skokie, Illinois 60077
T 847.410.4400 F 847.410.4500

Submitted by Sea-Tac Lighting & Controls, LLC			
	Job Name: DWFRITZ Renovation Architect: Lance Mueller & Assoc. - Seattle (Seattle)	**Catalog Number:** RE11005DB Notes:	**Type:** **L1** SEATAC-WWA17-36040

RIO 1.1-1.4

Application	Continuous line for architectural lighting
Installation	purpose linear driveover (11,000 lbs), profile for indoor and outdoor application
Mounting	recessed (wall, floor)
Material	PMMA, stainless steel
N° and type of LED	power LED SMD
Nom. power consumption	3.5W/ft
Power supply	24Vdc
Power supply unit	Order separately
Power supply cables	included a neoprene cable of 4.92'
Total Delivered Lumens	168 lm/3.28' (2800K) diffused
Optics	white: 2600K, 2800K, 3700K
LED color	IP67
Ingress protection	IK10
Impact resistance	
Features	dimmable, NTC temperature control, tropicalized PCB, driveover (11,000 lbs), no dark zone between lighting fixtures



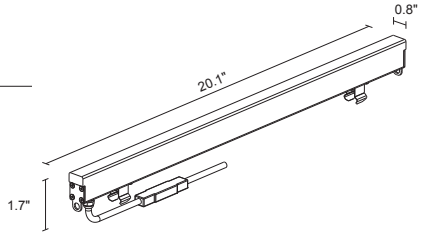
D - Diffused (Rio 1.1)

H (ft)	Ø (ft)	Fc max (3000K)
1.64	5.51	19
3.28	11.1	5
6.56	22.1	1
8.20	27.6	.7
9.84	33.2	.6

6W (8.5W RGB) - 24Vdc - **20.1"** (510 mm)

RE1100 D B

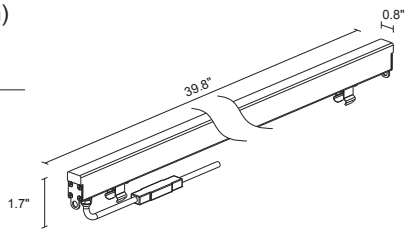
LED color
9 - 3700K
5 - 2800K
F - 2600K
6 - RGB



12W (17W RGB) - 24Vdc - **39.8"** (1010 mm)

RE1200 D B

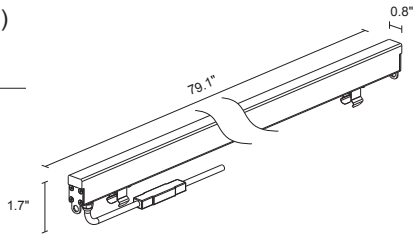
LED color
9 - 3700K
5 - 2800K
F - 2600K
6 - RGB



24W (34W RGB) - 24Vdc - **79.1"** (2010 mm)

RE1400 D B

LED color
9 - 3700K
5 - 2800K
F - 2600K
6 - RGB



Rated IP67

designplan

79 Trenton Ave
Frenchtown, NJ 08825

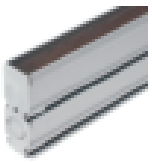
sales@designplan.com
www.designplan.com

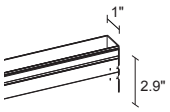
Tel: 908-996-7710
Fax: 908-996-7042

Submitted by Sea-Tac Lighting & Controls, LLC			
	Job Name: DWFRITZ Renovation Architect: Lance Mueller & Assoc. - Seattle (Seattle)	**Catalog Number:** RE11005DB Notes:	**Type:** **L1** SEATAC-WWA17-36040

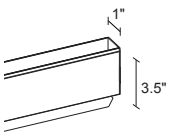
ACCESSORIES

Aluminium outer casing
WC8111 20.24" per Rio 1.1
WC8112 40.00" per Rio 1.2
WC8114 79.45" per Rio 1.4

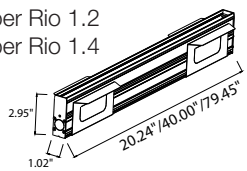




Stainless steel outer casing
WC8151 20.20" per Rio 1.1
WC8152 39.96" per Rio 1.2
WC8154 79.41" per Rio 1.4



Aluminium outer casing for plasterboard
WC8311 20.24" per Rio 1.1
WC8312 40.00" per Rio 1.2
WC8314 79.45" per Rio 1.4



Fixing kit for stainless steel outer casing
WN8011
*Not to be used with aluminum outer casing.

Extractors pair
(Rio 1.1 - 1.2 - 1.4)
WN8001

Fixing kit for aluminium outer casing
WN8010
*Not to be used with stainless steel outer casing.

POWER SUPPLIES

24vDC

			6W	12W	24W
PPLT00155	90-265vAC TO 24vDC 30W	Class 2	1-4 Fixtures	1-2 Fixtures	N/A
PPLT00157	90-265vAC TO 24vDC 60W	Class 2	1-8 Fixtures	1-4 Fixtures	1-2 Fixtures
PPLT00158	90-265vAC TO 24vDC 100W	Class 2	1-13 Fixtures	1-6 Fixtures	1-3 Fixtures
PPLT00143	120-277vAC to 24vDC 96W 0-10vDIM IP64	Class 2 w/ 0-10vDIM via PWM	1-12 Fixtures	1-6 Fixtures	1-3 Fixtures

Other power supplies available on request. Consult factory for RGB power supplies.

designplan

sales@designplan.com
www.designplan.com

79 Trenton Ave
Frenchtown, NJ 08825

Tel: 908-996-7710
Fax: 908-996-7042

MAIN BUILDING

NEW COPING: GALVANIZED METAL, PRE-PAINTED, COLOR " Silver Metailic" by Cascadia Metals. (METAL COLOR 1)

EXISTING PRECAST WALL COLOR: PAINTED, COLOR: Benjamin Moore's 1610 "French Beret" (PAINT 1)

STOREFRONT: NOMINAL 2" X 4 1/2" ALUMINUM, COLOR "Clear Anodized" (METAL COLOR 1)

GLASS: CLEAR INSULATED LOW E (PPG SOLARBAN 60, COLOR CLEAR)

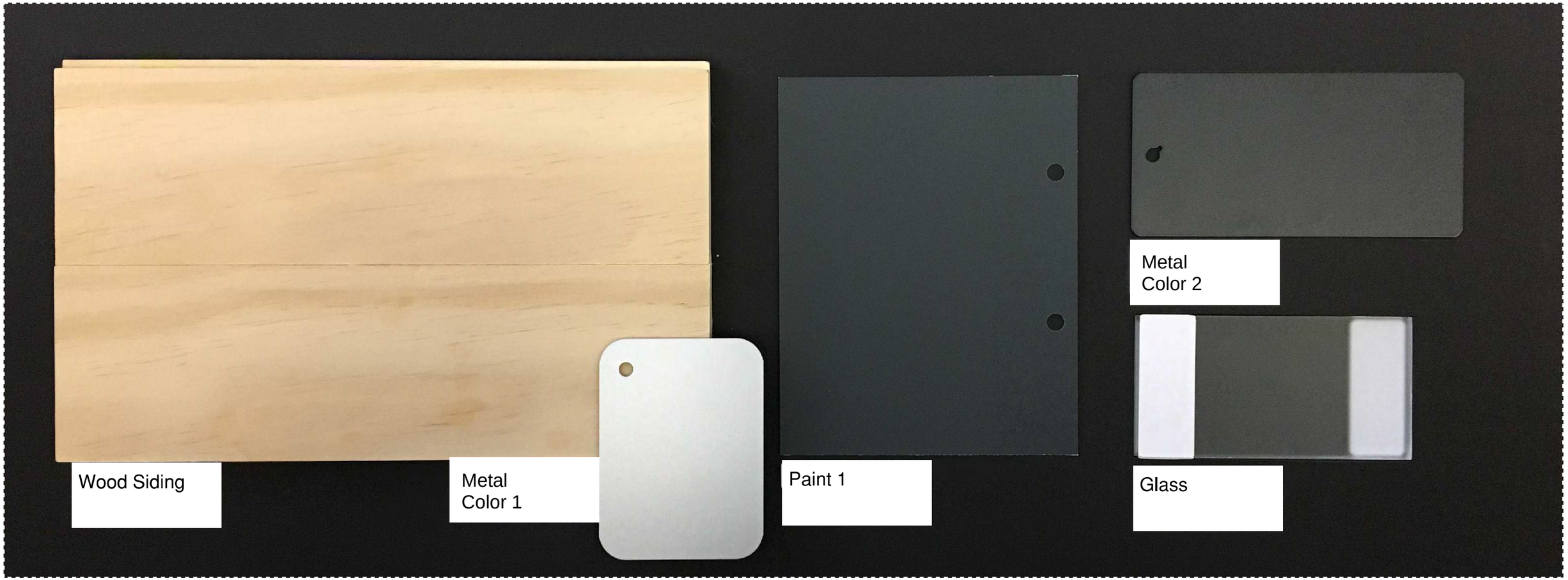
ENTRY ADDITION

METAL PANEL SYSTEM: SKYLINE SHEET METAL SSMPER-X SYSTEM, COLOR "BLACK ANODIZED" (METAL COLOR 2)

WOOD SIDING: CEDAR T&G SIDING WITH CLEAR SEALER FINISH, Miller "Storm System," Transparent Natural Oil NR 10040 Clear. (WOOD SIDING)

STOREFRONT: NOMINAL 2"X10" ALUMINUM, COLOR "Black Anodized" (METAL COLOR 2)

GLASS: CLEAR INSULATED LOW E (PPG SOLARBAN 60, COLOR CLEAR)



MATERIAL BOARD

AAI afghan associates, inc.
ENGINEERING

DW Fritz

PRELIMINARY STORMWATER REPORT & CALCULATIONS

9900 SW Boeckman Rd,
Wilsonville, Oregon, 97070

May 8, 2017
AAI PROJECT NUMBER: A16143.11

AAI Engineering
4875 S.W. Griffith Drive
Suite 300
Beaverton, Oregon 97005
PH 503.620.3030 FX 503.620.5539
EMAIL: delmore@aaieng.com

Table of Contents

Tables and Figures

Appendices

I. Project Summary

This report has been prepared to outline the existing and proposed on-site stormwater conditions for the DW Fritz project. The report is based on field observations, existing survey data and a site geotechnical report.

The project site is located in Wilsonville, Oregon south of SW Boeckman Road. The project site is bordered by SW Boeckman Road to the north, Oregon Electric Railroad tracks to the east, New Kinsman Road to the west, and Oldcastle Precast to the south. The total project property is approximately 24.5AC. The existing project site currently consists of one building, concrete pads, asphalt parking and pedestrian areas. The site in general slopes from the north to the southwest corner of the property. The existing stormwater improvements collect the site runoff and outfall it to the wetland area to the southwest corner of the property.

See Appendix A – Existing Conditions for additional information on the existing site layout and improvements.

The primary purpose of this project is to improve the site for a proposed additional parking lots. The site improvements will consist of new parking lots, islands, and a building addition. In addition to the site improvements there are proposed stormwater improvements. The proposed stormwater system will outfall into the existing wetland after running through multiple onsite stormwater facilities.

See Appendix B – Site Plan and Appendix C – Storm Plans for additional site improvements information.

II. Stormwater Design

The existing wetland is currently managing the entire runoff from the site. The runoff from the proposed site improvements will be collected by new catch basins and conveyance system and outfall into the wetland after running through onsite vegetated flow-through basins (VFB). No runoff from adjacent properties are anticipated to be collected by the onsite improvements.

See Table 2.1 – On-Site Basin Properties for site runoff area information.

TABLE 2.1: On-Site Basin Properties

Basin	Drainage Source	Area (sf)				Collection Type
		Total	Impervious	Pervious	Roof	
1	Parking	16,130	13,615	2,237	0	VFB-01
2	Parking	12,720	11,270	1,172	0	VFB-02
3	Parking	11,650	10,840	540	0	VFB-03
4	Parking/Roof	24,990	19,935	3,437	365	VFB-04
5	Parking	11,035	10,270	765	0	VFB-05
Total		**76,525**	**65,930**	**8,151**	**365**	

See Appendix D – Stormwater Calculations for additional swale and orifice sizing information.

III. Conveyance Calculations

All proposed pipes are sized to convey the 25-year storm event.

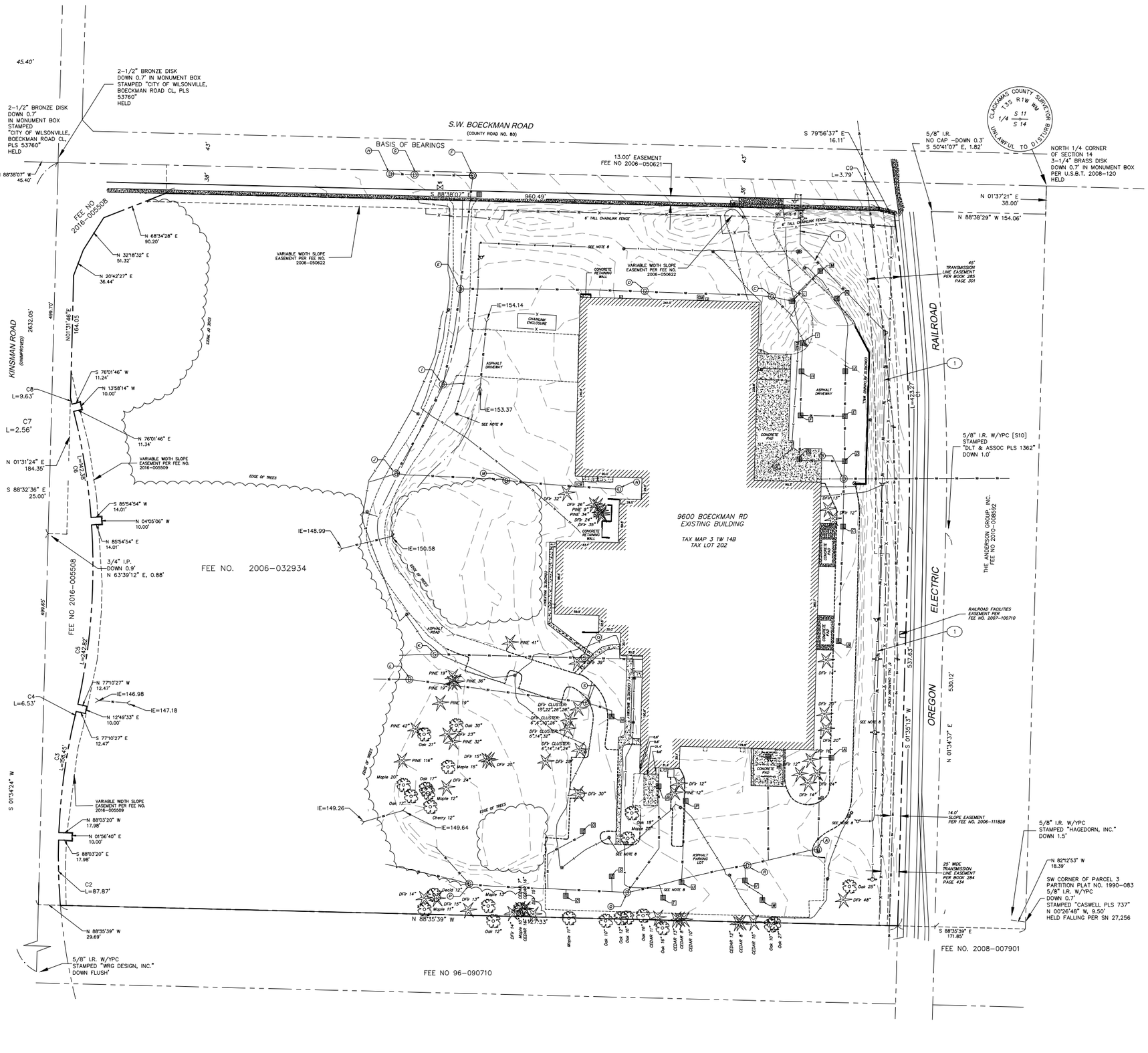
See Appendix E – Conveyance Calculations for pipe sizing information.

IV. Engineering Conclusion

Based on the requirements of using low impact development and the BMP sizing tool the proposed site facilities will be adequately designed to manage the proposed development conditions and should be approved as designed.

Appendix A

Existing Conditions



SINCE 1952
ANDY PARIS AND ASSOCIATES, INC.
PROFESSIONAL LAND SURVEYORS
16057 BOONES FERRY ROAD
LAKE OSWEGO, OREGON 97035
PH: 503-636-3341
www.andyparis.com

SURVEY NOTES

1. VERTICAL DATUM IS NAVD88 BASED ON OPUS SOLUTION OF STATIC GPS OBSERVATION.
2. THE BOUNDARIES AS SHOWN ON THIS MAP ARE BASED ON RECORD DATA AND FOUND MONUMENTS. THIS MAP DOES NOT REPRESENT A SURVEY TO BE RECORDED, BUT WAS DONE FOR SITE/TOPO INFORMATION ONLY.
3. THE LOCATION AND OR EXISTENCE OF UTILITY SERVICE LINES AS SHOWN ON THIS MAP ARE BASED ON FIELD OBSERVATION ONLY. THERE MAY EXIST ADDITIONAL SERVICE LINES NOT SHOWN ON THIS SURVEY.
4. SUBSURFACE AND ENVIRONMENTAL CONDITIONS WERE NOT EXAMINED OR CONSIDERED AS A PART OF THIS SURVEY. NO STATEMENT IS MADE CONCERNING THE EXISTENCE OF UNDERGROUND OR OVERHEAD CONTAINERS OR FACILITIES THAT MAY AFFECT THE USE OR DEVELOPMENT OF THIS TRACT.
5. PRIVATE UTILITY LOCATOR UNABLE TO DETERMINE LOCATION OF PRIVATE WATER LINE, SUSPECTED PLASTIC PIPE BURIED WITHOUT MAGNETIC LOCATING STRIPS. WATER SYSTEM IS ASSUMED TO BE A LOOPED SYSTEM THAT CIRCLES THE EXISTING BUILDING.

(X) UTILITIY NOTES

1 APPROXIMATE LOCATION OF EXISTING 10" CI WATER MAIN SHOWN. CONTRACTOR TO POTHOLE AND VERIFY LOCATION PRIOR TO CONSTRUCTION

SURVEY LEGEND

- FOUND MONUMENT AS NOTED
- SANITARY SEWER MANHOLE
- STORM DRAIN MANHOLE
- CATCH BASIN
- GAS METER
- UTILITY POLE
- METAL LIGHT POLE
- METAL BOLLARD
- WATER VALVE
- FIRE HYDRANT
- FDC
- ELECTRIC VAULT
- WATER VAULT
- TRANSFORMER
- IRRIGATION CONTROL BOX
- — SS — SANITARY SEWER LINE
- — SD — STORM DRAIN LINE
- — W — WATER LINE
- — TV — UNDERGROUND TELEVISION CABLE LINE
- — T — UNDERGROUND COMMUNICATIONS LINE
- — E — UNDERGROUND ELECTRICAL LINE
- — OH — OVERHEAD UTILITY LINE
- — X — FENCE LINE

NORTH

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

no.	revision	date
1	SE SIDE ROOF RESHAPE / E & W GUNWAY PACKG	5/8/17

16-066
job no.
DS
drawn
CNH
checked
01-23-17
date

REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
JULY 10, 2001
CRAIG M. HARRIS
RENEWAL 6/30/17

AAI ENGINEERING
4800 SW Griffith Drive, Suite 320 Beaverton, OR 97005
503.641.3478 FAX 503.641.8824 www.aaiengineering.com
Project No: 16-066.1

DWFRITZ Renovation
9900 SW Boeckman Rd.
Wilsonville, OR 97070

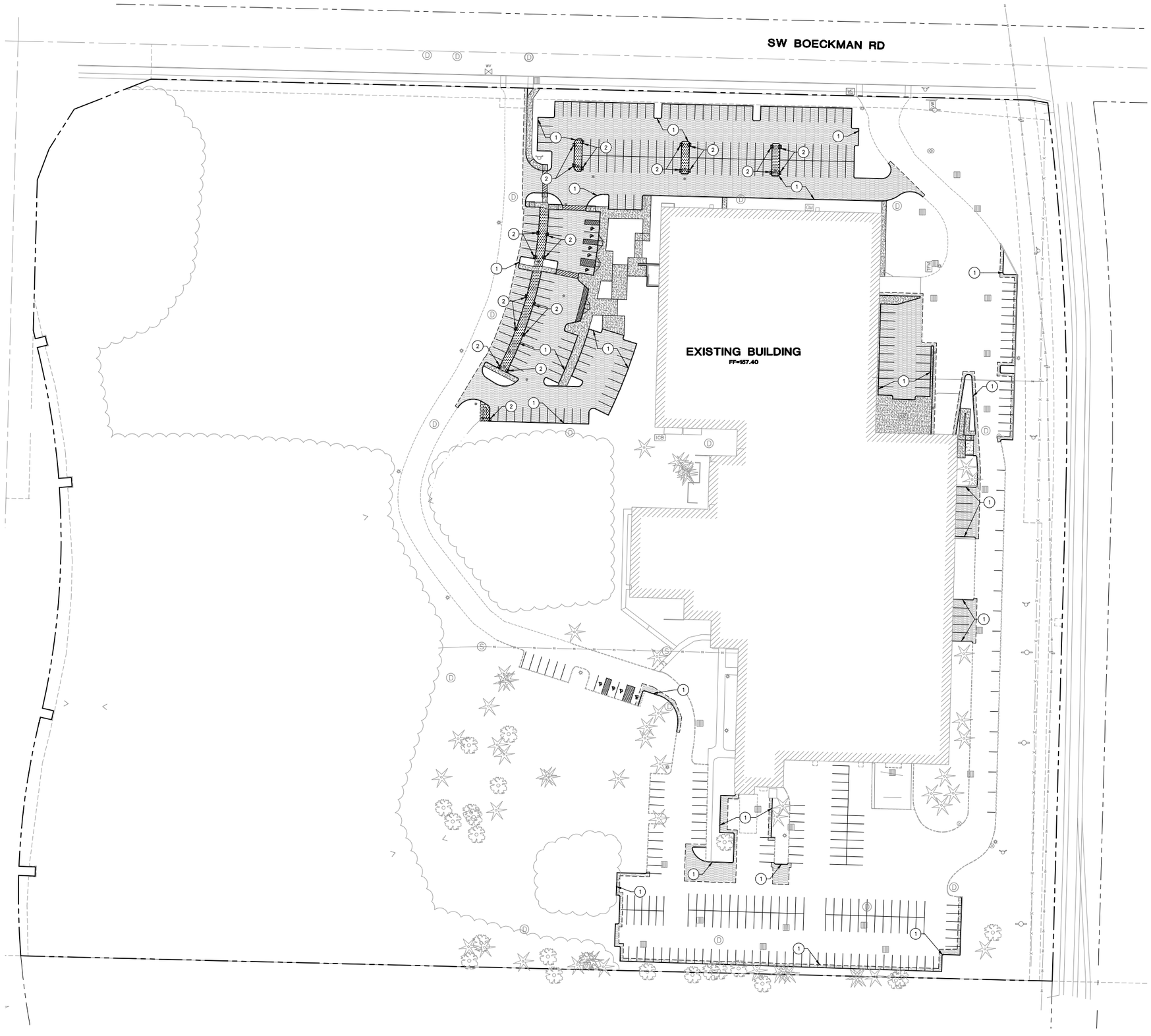
EXISTING CONDITIONS

LANCE MUELLER & ASSOCIATES
ARCHITECTS, AIA
130 LAKESIDE · SEATTLE, WA 98122 · 206 325 2553

sheet C0.2

Appendix B

Site Plan



SHEET NOTES

1. SEE SHEET C0.1 FOR ADDITIONAL SHEET NOTES.
2. SEE ARCHITECTURAL PLANS FOR ADDITIONAL SITE INFORMATION.
3. THE CONTRACTOR SHALL HAVE A FULL SET OF THE CURRENT APPROVED CONSTRUCTION DOCUMENTS INCLUDING ADDENDA ON THE PROJECT SITE AT ALL TIMES.
4. THE CONTRACTOR SHALL KEEP THE ENGINEER AND JURISDICTION INFORMED OF CONSTRUCTION PROGRESS TO FACILITATE SITE OBSERVATIONS AT REQUIRED INTERVALS. 24-HOUR NOTICE IS REQUIRED.

(X) SITE NOTES

1 CONSTRUCT TYPICAL CURB PER DETAIL 1/C4.0

2 CONSTRUCT CONCRETE CURB INLET PER DETAIL 2/C4.0

LEGENDS

PROPERTY LINE

PROPOSED CURB

SIDEWALK PER DETAIL 3/C4.0

ASPHALT SURFACING PER DETAIL 4/C4.0

VEGETATED FLOW-THROUGH BASINS (VFB)

no.	revision	date
1	SW QUAD ROOM RESIZING, FF & INSURANCE PACKAGE	5/8/17

16-066
job no.
DSE
drawn
DMH
checked
01-23-17
date

RENEWAL 6/30/17

AAI engineering
6605 SW Carmen Drive, Suite 300 Beaverton, OR 97008
www.aaiengineering.com 503.924.8844 Project No. 16-066.1

DWFRITZ Renovation
9900 SW Boeckman Rd.
Wilsonville, OR 97070

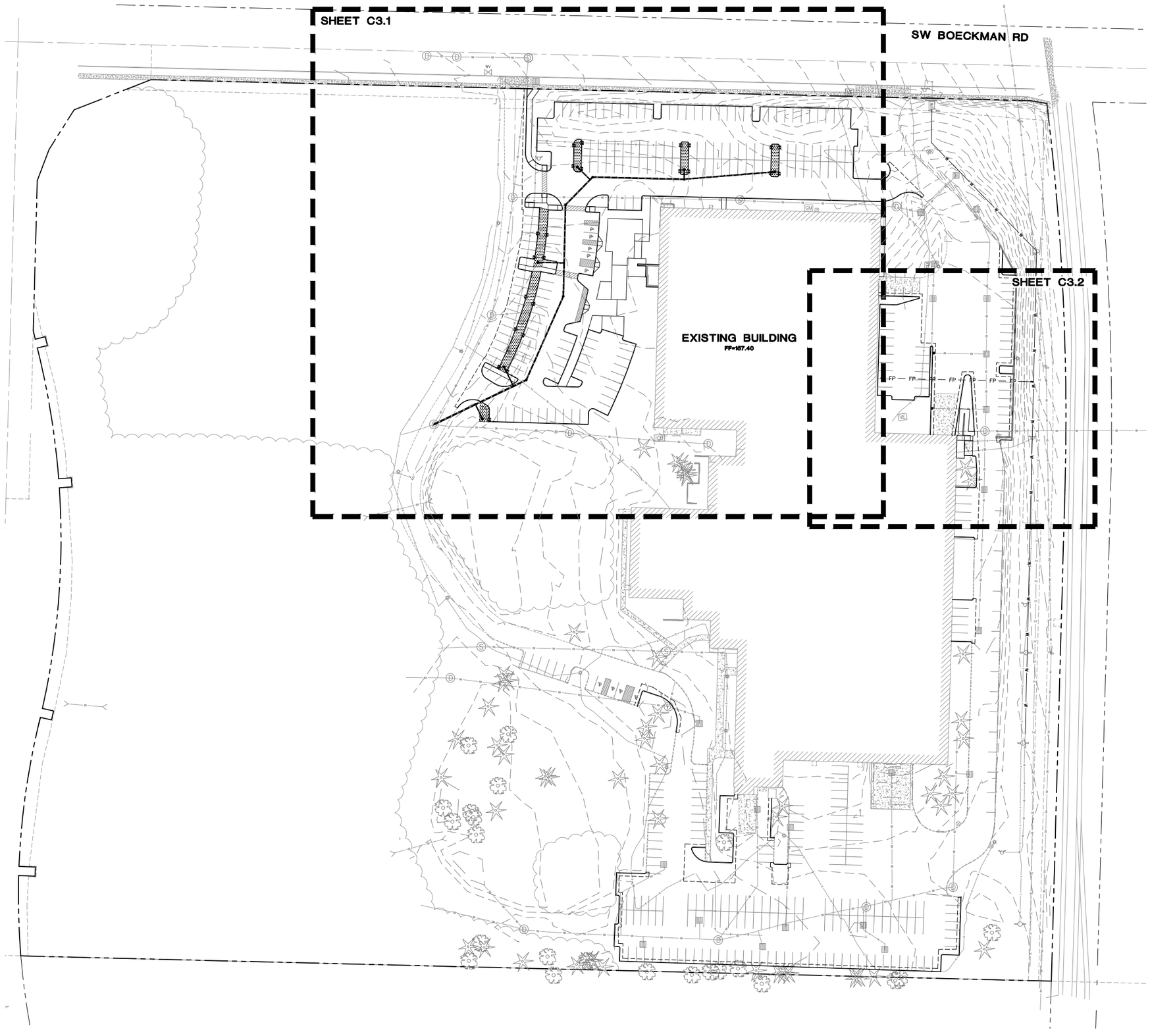
LANCE MUELLER & ASSOCIATES
ARCHITECTS · AIA
130 LAKESIDE · SEATTLE, WA 98122 · 206 325 2553

SITE PLAN

sheet C1.0

Appendix C

Storm Plans



SHEET NOTES

1. SEE SHEET C0.1 FOR ADDITIONAL SHEET NOTES.
2. PIPE BEDDING AND BACKFILL UTILITIES SHALL BE DONE PER DETAIL 5/C4.0.
3. INSTALL THRUST BLOCKS ON FIRE AND WATER LINES PER DETAIL 6/C4.0.
4. THIS PLAN IS GENERALLY DIAGRAMMATIC. IT DOES NOT SHOW EVERY JOINT, BEND, FITTING, OR ACCESSORY REQUIRED FOR CONSTRUCTION.
5. CLEAN OUTS SHALL BE INSTALLED IN CONFORMANCE WITH UPC CHAPTER SEVEN, SECTION 707 AND SECTION 719. NOT ALL REQUIRED CLEAN OUTS ARE SHOWN.
6. DOMESTIC WATER AND FIRE LINES AND ACCESSORIES BETWEEN THE WATER METER AND THE BUILDING SHALL BE INSTALLED BY A LICENSED PLUMBER EMPLOYED BY A LICENSED PLUMBING CONTRACTOR.
7. UTILITIES WITHIN FIVE FEET OF A BUILDING SHALL BE CONSTRUCTED OF MATERIALS APPROVED FOR INTERIOR USE AS DESCRIBED IN THE CURRENT EDITION OF THE UPC.
8. INLETS AND OUTLETS TO ON-SITE MANHOLES SHALL HAVE FLEXIBLE CONNECTION NO CLOSER THAN 12" AND NO FARTHER THAN 36" FROM THE MANHOLE.

LEGEND

STORM LINE

FIRE LINE — FP — FP — FP — FP —

no.	revision	date
1	SE SIDE ROOM RESHAPE & ROOFLINE PACKAGE	5/8/17

16-086 job no.
DS drawn
CMN checked
01-23-17 date

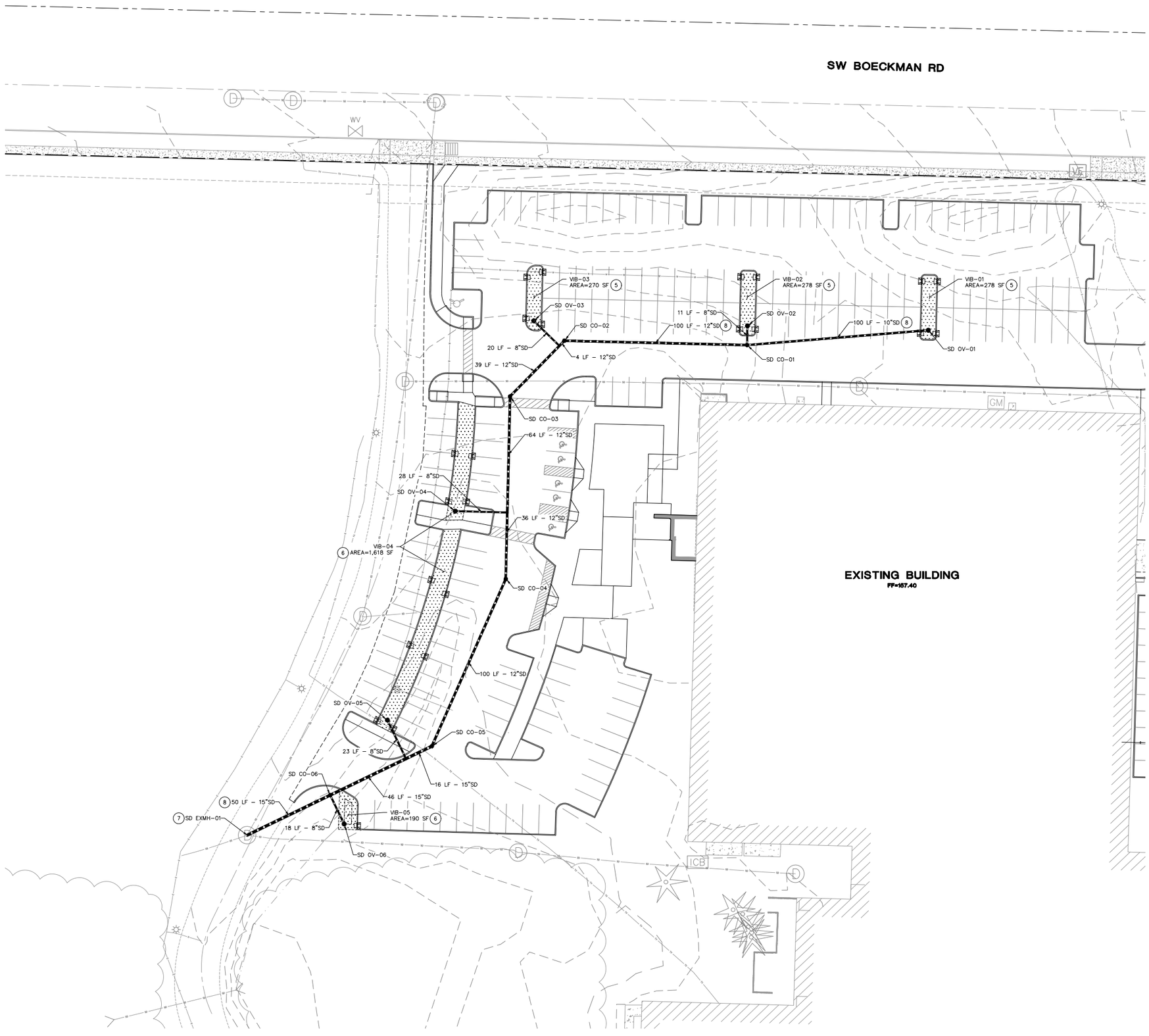
REGISTERED PROFESSIONAL ENGINEER
OREGON
JANUARY 10, 2006
NL HARRIS
RENEWAL 6/30/17

AAI engineering
605 SW 10th Avenue, Suite 300 Portland, OR 97205
503.227.3251 www.aaiengineering.com
Project No. 16-086.1

DWFRITZ Renovation
9900 SW Boeckman Rd.
Wilsonville, OR 97070

LANCE MUELLER & ASSOCIATES
ARCHITECTS · AIA
130 LAKESIDE · SEATTLE, WA 98122 · 206 325 2553

UTILITY PLAN
sheet C3.0



SHEET NOTES

1. SEE SHEETS C0.1 AND C3.0 FOR SHEET NOTES AND LEGEND.
2. ALL HORIZONTAL AND PIPE INVERT ELEVATIONS ARE BASED ON THE CENTER OF THE STRUCTURE,

(X) UTILITIY NOTES

1 APPROXIMATE LOCATION OF EXISTING 10" CI WATER MAIN. CONTRACTOR TO POTHOLE AND VERIFY LOCATION PRIOR TO ORDERING MATERIALS.

2 CONNECT TO EXISTING WATER MAIN WITH 10"x8" TAPPING SLEEVE.

3 CONNECT TO EXISTING BUILDING SERVICE. SEE PLUMBING PLANS FOR CONTINUATION.

4 INSTALL MJxMJ 8" 45° BEND.

5 CONSTRUCT STORMWATER PLANTER, PER DETAIL 7/C4.0.

6 CONSTRUCT STORMWATER SWALE, PER DETAIL 8/C4.0.

7 CONNECT TO EXISTING STORMWATER STRUCTURE. CONTRACTOR TO VERIFY PIPE INVERTS PRIOR TO CONSTRUCTION.

8 INSTALL DIP PIPING

LABEL LEGEND

PIPE LABELS

UTILITY LENGTH
UTILITY SIZE
UTILITY TYPE
XXLF - XX" XX
S=X.XX%
SLOPE (WHERE APPLICABLE)

STRUCTURE LABELS

UTILITY TYPE (SD=STORM DRAINAGE, FP=FIRE PROTECTION)
STRUCTURE TYPE CALLOUT (SEE BELOW)
ID NUMBER (WHERE APPLICABLE)
XX XX-XX
RIM=XX.XX
IE IN=XX.X
IE OUT=XX.X
STRUCTURE INFO (WHERE APPLICABLE)

STRUCTURE TYPES

CALLOUT	DESCRIPTION
CB	CATCH BASIN, PER DETAIL 9/C4.0
CO	CLEAN OUT, PER DETAIL 10/C4.0
GV	GATE VALVE, PER DETAIL 11/C4.0
MH	48" MANHOLE, PER DETAIL 12/C4.0
PIV	POST INDICATOR VALVE, PER DETAIL 13/C4.0
OV	OVERFLOW INLET, PER DETAIL 14/C4.0

NORTH
GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

no.	revision	date
1	SITE PLAN REVISIONS PER A-E PRELIMINARY PRICING	5/8/17

16-066 job no.
DS drawn
CMN checked
01-23-17 date

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 15, 2005
CRAIG M. HARRIS
RENEWAL 6/30/17

AAI engineering
6605 SW Carman Drive | Suite 100 | Beaverton, OR | 97008
503.924.8844 | fax 503.924.8866 | www.aaiengineering.com
Project No. 16-066.1

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Wilsonville, OR 97070

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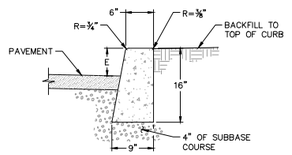
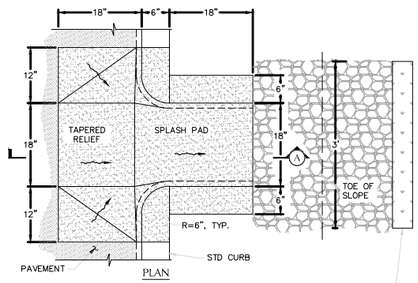
ARCHITECTS · AIA
130 LAKESIDE · SEATTLE, WA 98122 · 206 325 2553

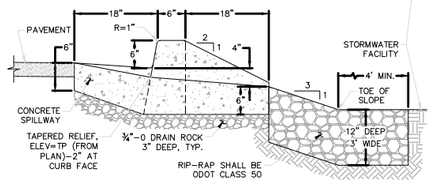
UTILITY ENLARGEMENT
sheet C3.1



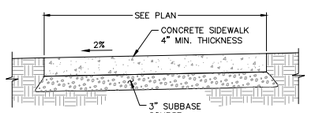
NOTES:
1. CURB EXPOSURE 'E' = 6", TYP. VARY AS SHOWN ON PLANS OR AS DIRECTED.
2. CONSTRUCT CONTRACTION JOINTS AT 15' MAX. SPACING AND AT RAMPS. CONSTRUCT EXPANSION JOINTS AT 200' MAX SPACING AT POINTS OF TANGENCY AND AT ENDS OF EACH DRIVEWAY.
3. TOPS OF ALL CURBS SHALL SLOPE TOWARD THE ROADWAY AT 2% UNLESS OTHERWISE SHOWN OR AS DIRECTED.
4. DIMENSIONS ARE NOMINAL AND MAY VARY TO CONFORM WITH CURB MACHINE AS APPROVED BY THE ENGINEER.

1 CONCRETE CURB - STANDARD
SCALE: NTS



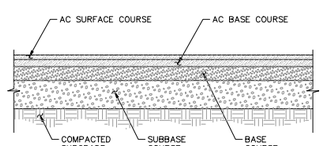


2 CONCRETE CURB INLET
SCALE: NTS



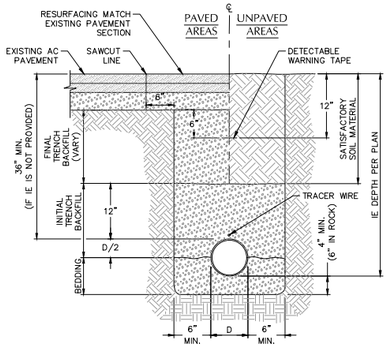
NOTES:
1. CONSTRUCT CONTRACTION JOINTS AT 15' MAX. SPACING AND AT RAMPS. CONSTRUCT EXPANSION JOINTS AT 200' MAX SPACING, AT POINTS OF TANGENCY AND AT ENDS OF EACH DRIVEWAY, UNLESS NOTED OTHERWISE.

3 CONCRETE SIDEWALK
SCALE: NTS

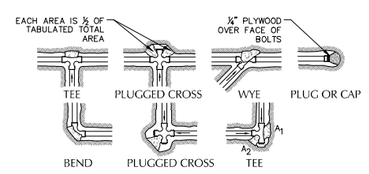


NOTES:
1. MATCH EXISTING ASPHALT PAVEMENT, WHICHEVER IS GREATER.

4 ASPHALT PAVEMENT SECTION
SCALE: NTS



5 TYPICAL PIPE BEDDING AND BACKFILL
SCALE: NTS



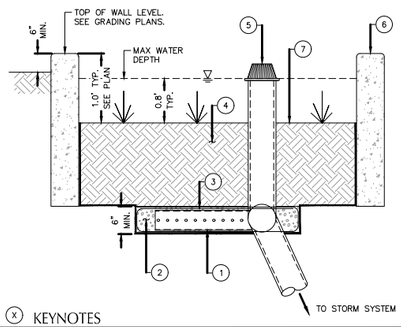
1. CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
2. KEEP CONCRETE CLEAR OF JOINT AND ACCESSORIES.
3. THE REQUIRED THRUST BEARING AREAS FOR SPECIAL CONNECTIONS ARE SHOWN ENCIRCLED ON THE PLAN; e.g. (15) INDICATES 15 SQUARE FEET BEARING AREA REQUIRED.
4. IF NOT SHOWN ON PLANS REQUIRED BEARING AREAS AT FITTING SHALL BE AS INDICATED BELOW, ADJUST IF NECESSARY, TO CONFORM TO THE TEST PRESSURE(S) AND ALLOWABLE SOIL BEARING STRESS (ES) STATED IN THE SPECIAL SPECIFICATIONS.
5. BEARING AREAS AND SPECIAL BLOCKING DETAILS SHOWN ON PLANS TAKE PRECEDENCE OVER BEARING AREAS AND BLOCKING DETAILS SHOWN ON THIS STANDARD DETAIL.

BEARING AREA OF THRUST BLOCK IN SQUARE FOOT

FITTING SIZE	TEE, WYE, PLUG, OR CAP	90° BEND PLUGGED CROSS	TEE PLUGGED ON RUN A1	TEE PLUGGED ON RUN A2	45° BEND	22½° BEND	11¼° BEND
4	1.0	1.4	1.9	1.4	1.0		
6	2.1	3.0	4.3	3.0	1.6	1.0	
8	3.8	5.3	7.6	5.4	2.9	1.5	1.0
10	5.9	8.4	11.8	8.4	4.6	2.4	1.2

NOTE:
ABOVE BEARING AREAS BASED ON TEST PRESSURE OF 150 p.s.i. AND AN ALLOWABLE SOIL BEARING STRESS OF 2000 p.s.i. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURE AND SOIL BEARING STRESSES, USE THE FOLLOWING EQUATION: BEARING AREA = (TEST PRESSURE/150)X(2000/ SOIL BEARING STRESS)X(TABLE VALUE).

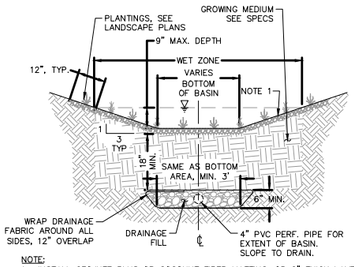
6 THRUST BLOCK
SCALE: NTS



(X) KEYNOTES

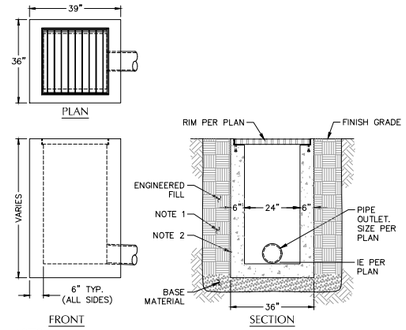
1 4" PVC PERF. PIPE FOR EXTENT OF FACILITY. SLOPE TO DRAIN.
2 DRAINAGE FILL, MIN. THICKNESS AS SHOWN.
3 WRAP DRAINAGE FABRIC AROUND ALL SIDES OF DRAINAGE FILL ZONE, 12" OVERLAP.
4 GROWING MEDIUM PER SOIL PREPARATION SPECIFICATIONS. THICKNESS AS SHOWN.
5 OVERFLOW INLET, SEE PLAN FOR TYPE.
6 CONCRETE CURB WALL.
7 PLANTINGS. SEE LANDSCAPE PLANS.

7 TYPICAL FLOW-THROUGH PLANTER
SCALE: NTS



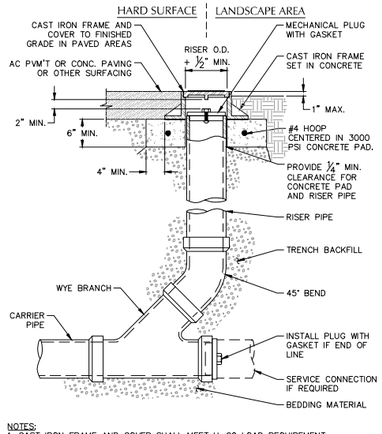
NOTE:
1. INSTALL GEOJUTE PLUS OR COCONUT FIBER MATTING, OR 2" THICK LAYER OF PEA GRAVEL OR OTHER NON−FLOATING MULCH AS APPROVED BY LANDSCAPE ARCHITECT.

8 TYPICAL FLOW-THROUGH BASIN
SCALE: NTS



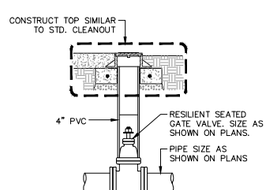
NOTES:
1. CONTRACTOR TO WIDEN EXCAVATION AS REQUIRED TO OBTAIN COMPACTION WITH CONTRACTORS COMPACTION EQUIPMENT.
2. CONCRETE BASIN TO BE 3000 PSI.

9 CONCRETE CATCH BASIN
SCALE: NTS

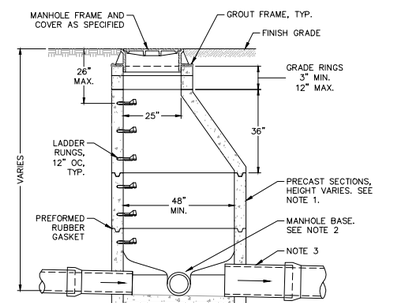


NOTES:
1. CAST IRON FRAME AND COVER SHALL MEET H−20 LOAD REQUIREMENT.
2. FOR CARRIER PIPE SIZE 6"Ø AND LESS, PROVIDE RISER PIPE SIZE TO MATCH CARRIER PIPE.
3. FOR CARRIER PIPE SIZE 8"Ø AND LARGER, RISER PIPE SHALL BE 6"Ø.
4. RISER PIPE MATERIAL TO MATCH CARRIER PIPE MATERIAL.

10 STANDARD CLEANOUT (COTG)
SCALE: NTS

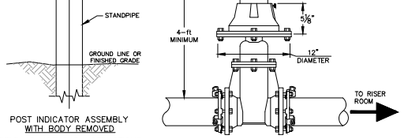


11 GATE VALVE
SCALE: NTS



NOTES:
1. ALL PRECAST SECTIONS SHALL CONFORM TO REQUIREMENTS OF ASTM C−478.
2. MANHOLE BASE MAY BE PRECAST OR CAST IN PLACE. SEE STANDARD MANHOLE BASE DETAILS.
3. ALL CONNECTING PIPES SHALL HAVE FLEXIBLE, GASKETED AND UNRESTRAINED JOINT WITHIN 18" OF MANHOLE VAULT..

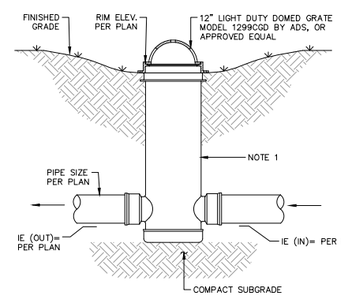
12 STANDARD MANHOLE
SCALE: NTS



FIELD ADJUSTMENT INSTRUCTIONS
1. REMOVE THE BODY FROM THE TOP OF THE INDICATOR POST ASSEMBLY.
2. CUT THE REQUIRED LENGTH OFF THE BOTTOM OF THE STANDPIPE FOR THE GROUND LINE TO MATCH UP WITH STANDPIPE GROUND LINE MARK.
3. CUT THE 1" SQ. EXTENSION AT A DISTANCE OF 9" ABOVE THE TOP OF THE STANDPIPE.
4. SET THE "OPEN" AND "SHUT" TARGETS FOR THE APPROPRIATE VALVE SIZE.
5. RE−ATTACH THE BODY TO THE TOP OF THE INDICATOR POST ASSEMBLY.
6. ALL POST INDICATOR VALVES SHALL BE INSTALLED WITH AN ELECTRONIC UL LISTED TAMPER SWITCH.
7. THERE SHALL BE 36" OF UNOBSTRUCTED CLEARANCE AROUND THE PERIMETER OF ALL POST INDICATOR VALVES.POST INDICATOR VALVE SHALL BE LOCATED AT A MINIMUM 5−ft FROM BUILDING.

NOTES:
1. VALVE CONTROLLING THE WATER SUPPLIES SHALL BE SUPERVISED IN THE OPEN POSITION SO THAT A CHANGE IN THE NORMAL POSITION OF THE VALVE WILL GENERATE A SUPERVISORY SIGNAL AT THE SUPERVISORY STATION.

13 STANDARD POST INDICATOR VALVE
SCALE: NTS



NOTES:
1. 12" NYLOPLAST DRAIN BASIN, OR APPROVED EQUAL

14 OVERFLOW INLET
SCALE: NTS

no.	revision	date
1	PER DEQ'S BEST ECONOMIC FEASIBLE PRACTICE	5/8/17

IE-066 job no.
DSE drawn
CMN checked
01-23-17 date

REGISTERED PROFESSIONAL ENGINEER CRAIG NICHOLAS HARRIS OREGON RENEWAL 6/30/17

AAI engineering
8825 SW Greenburg Rd. Suite 200, Tigard, OR 97223
503.245.1518 • FAX 503.245.1510 • www.aaiengineering.com

DWFRITZ Renovation
9900 SW Boeckman Rd.
Wilsonville, OR 97070

LANCE MUELLER & ASSOCIATES
ARCHITECTS • AIA
130 LAKESIDE • SEATTLE, WA 98122 • 206 325 2553

sheet C4.0

Appendix D

Stormwater Calculations

WES BMP Sizing Software Version 1.6.0.1, August 2015

WES BMP Sizing Report

Project Information

Project Name	DW Fritz
Project Type	Addition
Location	
Stormwater Management Area	76525
Project Applicant	
Jurisdiction	CCSD1NCSA

Drainage Management Area

Name	Area (sq-ft)	Pre-Project Cover	Post-Project Cover	DMA Soil Type	BMP
B1-Impervious	13,615	Forested	ConventionalConcrete	B	B1-Planter
B1-Pervious	2,237	Grass	Grass	B	B1-Planter
B2-Impervious	11,270	Grass	ConventionalConcrete	B	B2-Planter
B2-Pervious	1,172	Grass	Grass	B	B2-Planter
B3-Impervious	10,840	Grass	ConventionalConcrete	B	B3-Planter
B3-Pervious	540	Grass	Grass	B	B3-Planter
B4-Impervious	19,935	Grass	ConventionalConcrete	B	B4-Swale
B4-Pervious	3,437	Grass	Grass	B	B4-Swale
B5-Impervious	10,270	Grass	ConventionalConcrete	B	B5-Swale
B5-Pervious	575	Grass	Grass	B	B5-Swale

LID Facility Sizing Details

LID ID	Design Criteria	BMP Type	Facility Soil Type	Minimum Area (sq-ft)	Planned Areas (sq-ft)	Orifice Diameter (in)
B4-Swale	WaterQuality	Rain Garden - Infiltration	A1	314.0	1,618.0	0.0
B5-Swale	WaterQuality	Rain Garden - Infiltration	A1	156.6	190.0	0.0
B1-Planter	WaterQuality	Stormwater Planter - Infiltration	A1	214.0	278.0	0.0

B2-Planter	WaterQuality	Stormwater Planter - Infiltration	A1	174.1	278.0	0.0
B3-Planter	WaterQuality	Stormwater Planter - Infiltration	A1	164.9	270.0	0.0

Pond Sizing Details

1. FCWQT = Flow control and water quality treatment, WQT = Water quality treatment only

2. Depth is measured from the bottom of the facility and includes the three feet of media (drain rock, separation layer and growing media).

3. Maximum volume of the facility. Includes the volume occupied by the media at the bottom of the facility.

4. Maximum water storage volume of the facility. Includes water storage in the three feet of soil media assuming a 40 percent porosity.

Appendix E

Conveyance Calculations

Storm Conveyance Calculations

General			Connected Basin			Cumulative Basin										Piping				
Upstream Structure	Downstream Structure	Design Storm (yr)	Impervious Area (sf)	Pervious Area (sf)	Total Area (sf)	Impervious Area (sf)	Pervious Area (sf)	Weighted Runoff Coefficient	Total Basin Area (sf)	Total Area (ac)	Time of Concentration (min)	I (in/hr)	Q (cfs)	% Full (Q/Q_{MAX})	Size (in)	Slope (%)	Design Pipe Velocity (ft/s)	Full Pipe Velocity (ft/s)	Max Allowable Q (cfs)
OV-01	CO-01	25	13615	**2515**	16130	13615	2515	**0.80**	**16130**	0.37	5.00	**3.90**	**1.15**	**47.91%**	10	0.50%	**4.52**	4.52	**2.41**
OV-02	CO-01	25	11270	**1450**	12720	11270	1450	**0.83**	**12720**	0.29	5.00	**3.90**	**0.94**	**50.10%**	8	1.00%	**5.51**	5.51	**1.88**
CO-01	CO-02	25	0	**0**	0	24885	3965	**0.81**	**28850**	0.66	5.00	**3.90**	**2.09**	**53.49%**	12	0.50%	**5.11**	5.11	**3.91**
OV-03	CO-02	25	10840	**810**	11650	10840	810	**0.85**	**11650**	0.27	5.00	**3.90**	**0.89**	**47.49%**	8	1.00%	**5.51**	5.51	**1.88**
CO-02	CO-03	25	0	**0**	0	35725	4775	**0.82**	**40500**	0.93	5.00	**3.90**	**2.99**	**76.27%**	12	0.50%	**5.11**	5.11	**3.91**
OV-04	CO-03	25	9968	**2527**	12495	9968	2527	**0.77**	**12495**	0.29	5.00	**3.90**	**0.86**	**45.79%**	8	1.00%	**5.51**	5.51	**1.88**
CO-03	CO-04	25	0	**0**	0	45693	7302	**0.81**	**52995**	1.22	5.00	**3.90**	**3.85**	**75.79%**	12	0.84%	**6.62**	6.62	**5.07**
CO-04	CO-05	25	0	**0**	0	45693	7302	**0.81**	**52995**	1.22	5.00	**3.90**	**3.85**	**75.79%**	12	0.84%	**6.62**	6.62	**5.07**
OV-05	CO-05	25	9968	**2527**	12495	9968	2527	**0.77**	**12495**	0.29	5.00	**3.90**	**0.86**	**45.79%**	8	1.00%	**5.51**	5.51	**1.88**
CO-05	CO-06	25	0	**0**	0	55661	9829	**0.80**	**65490**	1.50	5.00	**3.90**	**4.71**	**51.15%**	15	0.84%	**7.68**	7.68	**9.20**
OV-06	CO-06	25	10270	**765**	11035	10270	765	**0.85**	**11035**	0.25	5.00	**3.90**	**0.84**	**44.99%**	8	1.00%	**5.51**	5.51	**1.88**
CO-06	EXMH-01	25	0	**0**	0	65931	10594	**0.81**	**76525**	1.76	5.00	**3.90**	**5.55**	**60.33%**	15	0.84%	**7.68**	7.68	**9.20**

Area Type	C	
Impervious	0.9	Per Clackamas County Roadway Standards
Landscape	0.25	Per Clackamas County Roadway Standards

Rational Method Assumptions:

(used for conveyance pipe sizing w/ 5 min duration)

2-yr Storm	2.50	in/hours	Table 6-2 of the City of Wilsonvillr Stromwater Master Plan
5-yr Storm	3.00	in/hours	Table 6-2 of the City of Wilsonvillr Stromwater Master Plan
10-yr Storm	3.45	in/hours	Table 6-2 of the City of Wilsonvillr Stromwater Master Plan
25-yr Storm	3.90	in/hours	Table 6-2 of the City of Wilsonvillr Stromwater Master Plan
50-yr Storm	4.25	in/hours	Table 6-2 of the City of Wilsonvillr Stromwater Master Plan
100-year Storm Ev	4.50	in/hours	Table 6-2 of the City of Wilsonvillr Stromwater Master Plan

REPUBLIC SERVICES

10295 SW Ridder Road, Wilsonville, OR 97070
O: 503.570.0626 F: 503.982.9307 republicservices.com

August 15, 2017

Bob Wells, Associate
Lance Mueller & Associates
130 Lakeside, #250
Seattle, WA 98122

Re: DW FRITZ Renovation

Dear Bob;

Thank you for sending me your site plans again for this re-development in Wilsonville along Boeckman Road. I appreciate the adjustments and location changes that you made.

My Company: Republic Services of Clackamas & Washington Counties has the franchise agreement to service this area with the City of Wilsonville, and Clackamas County. We will provide complete residential waste removal and recycling services as needed on a weekly basis for these sites.

We will be able to safely service both enclosures as designed. The access and circulation I agree, is excellent. Both sizes of the enclosures are great for present and future services. Please remember to keep in your final design plans to have enclosure gates open at least 120 degrees and be able to lock in the open position.

Thanks Bob for your help and concerns for our services prior to this project being developed.

Sincerely,

Frank J. Lonergan
Operations Manager
Republic Services Inc.

Prepared for

WILSONVILLE
OREGON

Wilsonville DW Fritz

Transportation Impact Analysis

Prepared by

DKS

August 2017

117 Commercial St NE
Suite 310
Salem, OR 97301
503.391.8773
dksassociates.com

August 14, 2017

Steve Adams
City of Wilsonville
29799 Town Center Loop East
Wilsonville, OR 97070

Subject: Wilsonville DW Fritz Transportation Impact Study P17021-003

Dear Steve,

DKS Associates is pleased to submit this transportation impact study for the proposed DW Fritz renovation and addition located at 9600 SW Boeckman Road in Wilsonville. Please feel free to call if you have any questions or comments regarding this study.

Sincerely,
DKS Associates

Scott Mansur, P.E., PTOE
Transportation Engineer

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1: INTRODUCTION AND SUMMARY

This study evaluates the transportation impacts associated with the renovation of the currently vacant 155,000 square foot building located at 9600 SW Boeckman Road and the addition of a 70,000 square foot high tech building and 4,000 square foot sit-down restaurant. The proposed additions are located on the south side of Boeckman Road, just west of the Portland & Western Railroad tracks in Wilsonville, Oregon.

The purpose of this transportation impact analysis is to identify potential mitigation measures needed to offset transportation impacts that the proposed development may have on the nearby transportation network. The analysis evaluated the traffic associated with the existing building and the proposed buildings (since there is no current traffic on the City transportation system). The impact analysis is focused on the study intersections, which were selected for evaluation in coordination with City staff[1]. The intersections are shown in Figure 1 and listed below:

- SW Boones Ferry Road/SW 95th Avenue
- SW Elligsen Road/ I-5 Southbound Ramp
- Boeckman Road/95th Avenue
- Boeckman Road/SW Parkway Avenue
- SW Wilsonville Road/SW Boones Ferry Road
- SW Wilsonville Road/I-5 Southbound Ramp

Figure 1: Study Area

This chapter provides an introduction to the proposed development and the steps taken to analyze the associated impacts on the transportation network. It highlights important elements of the remaining chapters, including a description of the project and the findings of the transportation analysis.

Table 1 lists important characteristics of the study area and proposed project.

[1] Phone conversation with Steve Adams, City of Wilsonville, March 29th, 2017.

Table 1: Key Study Area and Proposed Development Characteristics

Characteristics	Information
Study Area	
Number of Study Intersections	6
Analysis Period	Weekday PM Peak Hour (Peak hour between 4-6 PM)
Project Site	
Existing Land Use	155,000 sq. ft. manufacturing building (currently vacant)
Proposed Development	**Phase 1:** 155,000 sq. ft. manufacturing building renovation **Phase 2:** 70,000 sq. ft. high tech building and 4,000 sq. ft. restaurant
Project Access	Two existing driveways along Boeckman Road

Existing Intersection Operations

Existing traffic operations at the study intersection were determined for the PM peak hour based on the 2000 Highway Capacity Manual methodology for signalized intersections.[2] Table 2 lists the estimated delay, LOS , and v/c ratio of each study intersection. The existing study intersections currently meet mobility targers/operating standards.

Table 2: Existing PM Peak Study Intersection Operations

Intersection	Mobility Targets/ Operating Standard	Existing PM Peak		
		Delay	*LOS*	*v/c*
SW Boones Ferry Road/SW 95th Avenue	LOS D	25.5	C	0.77
SW Elligsen Road/I-5 Southbound Ramp	LOS D and 0.90 v/c[a]	17.7	B	0.79
Boeckman Road/SW 95th Avenue	LOS D	17.2	B	0.44
Boeckman Road/SW Parkway Avenue	LOS D	37.0	D	0.85
SW Wilsonville Road/SW Boones Ferry Road	LOS D	38.3	D	0.78
SW Wilsonville Road/I-5 Southbound Ramp	LOS D and 0.90 v/c[a]	23.6	C	0.52
I-5 Southbound On-Ramp Meter	N/A	-	-	0.91

Delay = Average Intersection Delay (sec.) LOS = Level of Service v/c = Volume-to-Capacity Ratio

[a] The typical ODOT mobility target for interchange ramps is a 0.85 v/c ratio. However, when the interchange vicinity is fully developed and adequate storage is available on the interchange ramp to prevent queues from backing up on the main line, then the target can be increased to a 0.90 v/c ratio. This is the case for the both I-5 interchange areas in Wilsonville.

It is important to note that the intersection operations at the study intersections shown in Table 2 represent typical operations. What this analysis does not include is incurred delay from incidents on the I-5 mainline and the ramp meter on the I-5 southbound ramp at Wilsonville Road that regulates the flow of traffic onto I-5.

[2] *2000 Highway Capacity Manual*, Transportation Research Board, Washington DC, 2000.

The existing capacity of this ramp meter is 1,260 vehicles per hour. If the peak hour demand of the southbound on-ramp exceeds 1,260 vehicles, additional storage would be necessary to prevent spillback and associated impacts on SW Wilsonville Road.

Currently, approximately 1,144 vehicles are entering the southbound on-ramp during the peak hour which results in a volume to capacity (v/c) ratio of 0.91 which is nearing the ramp's full capacity. When traffic incidents occur on I-5 and I-205 such that the additional traffic exceeds the 1,260 vehicles or the I-5 mainline cannot deliver the existing traffic flow, the I-5/SW Wilsonville Road interchange is significantly impacted and vehicles experience traffic delays similar to level of service "F" (greater than 80 seconds of delay).

Proposed Development

The proposed development project will be completed in two phases. The first phase involves renovating the currently vacant 155,000 square-foot building into combined office and warehouse space. The second phase will add a new 70,000 square-foot high tech building and a new 4,000 square-foot sit-down restaurant to the project site. This development will have two existing driveways along Boeckman Road.

Trip Generation

Trip generation is the method used to estimate the number of vehicles added to site driveways and the adjacent roadway network by a development during a specified period (i.e., such as the PM peak hour). For this study, the trip generation was based on the ITE Trip Generation Manual. Table 3 provides the primary trip generation for the proposed renovation (Phase 1) and occupancy of the existing 155,000 square foot building. The development in Phase 1 is expected to generate approximately 105 total (38 in, 67 out) PM peak hour trips.

Table 3: PM Peak Hour Primary Trip Generation Phase 1

Phase	Land Use (ITE Code)	Building area (square feet)	Trip Rate per 1,000 square feet	In	Out	Total
1	Manufacturing (140)	155,000	0.68[a]	38	67	**105**
			Phase 1 Total Primary Trips	38	67	**105**

[a]Rate back-calculated from ITE equation

Table 4 provides the primary trip generation for both the renovated building and the additions of the high tech building and restaurant (Phase 2). It should be noted that the Phase 2 ITE equation trip generation associated with the manufacturing land use is lower than what was assumed in Phase 1. The ITE data has a trip rate that decreases as the total square footage

increases. The proposed Phase 1 and Phase 2 development is expected to generate approximately 183 (75 in, 108 out) PM peak hour primary trips.

Table 4: PM Peak Hour Primary Trip Generation Phases 1 and 2

Phase	Land Use (ITE Code)	Building area (square feet)	Trip Rate per 1,000 square feet	In	Out	Total
1 and 2	Manufacturing (140)	155,000 + 70,000	0.64[a]	52	92	**144**
2	Restaurant (932)	4,000	9.85	23	16	**39**
		Phases 1 and 2 Total Primary Trips		75	108	**183**

[a]Rate back-calculated from ITE equation

As per ITE Trip Generation Handbook guidance,[3] two reductions in primary trips were included in the trip generation analysis; internal trips and pass-by trips. The following paragraphs discuss these reductions and Table 5 displays the total net new trips after accounting for the internal and pass-by trip reductions.

Internal Trips. A reduction of internal trips was evaluated to reduce the total number of driveway trips to account for trips between uses (for example employees from the industrial uses staying to eat at the restaurant). An internal capture rate of 10% was applied to the PM peak hour primary trips of the restaurant.

Pass-By Trips. A reduction of pass-by trips was evaluated to account for traffic that currently exists on the adjacent roadways that the proposed project will have primary access. Pass-by trips are subtracted out after the internal trips are applied and for this project and were only applied to the restaurant trip generation. Pass-by rate of 43% was taken from the ITE Trip Generation Handbook. Pass-by trips result in new driveway trips only and will not increase traffic to the adjacent roadways.

[3] Institute of Transportation Engineers, Trip Generation Handbook, October 1998.

Table 5: PM Peak Hour Net New Trips

	In	Out	Total
Total Primary Trips (Phases 1 and 2)	75	108	**183**
Internal Trip Reduction (10% of restaurant trips)	-2	-2	**-4**
Pass-By Trip Reduction (43% of restaurant trips)	-9	-6	**-15**
Net New Trips (Phase 1 and Phase 2)	64	100	**164**

After reducing the primary project site trips for the restaurant by the internal trip reduction of 10% and then the pass-by trip rate of 43%, the net new total trips to the project site is 164 (64 in/100 out) during the PM peak hour.

Project Trips Through City of Wilsonville Interchange Areas

The project trips through the two City of Wilsonville I-5 interchange areas were estimated based on the trip generation and distribution assumptions. The proposed DW Fritz development is expected to generate 32 PM peak hour trips for Phase 1 and a total of 49 PM peak hour trips for Phases 1 and 2 through the I-5/SW Elligsen Road interchange area. The development is expected to generate 21 PM peak hour trips for Phase 1 and 33 PM peak hour trips for Phases 1 and 2 through the I-5/Wilsonville Road interchange area.

Project Traffic Impact

The impact analysis includes trip generation, trip distribution, and PM peak hour project trips for Phase 1 and Phase 2 of the project. The analysis also includes scenarios that account for Stage II approved developments in the area, including those under construction or built but not yet occupied. The scenarios include:

- Existing + Stage II (includes traffic from other developments with Stage II approval or are under construction)
- Existing + Project (Phase 1)
- Existing + Project (Phase 1) + Stage II
- Existing + Project (Phase 1 and Phase 2)
- Existing + Project (Phase 1 and Phase 2) + Stage II

The study intersection operating conditions for the project trips during Phase 1 development and future Stage II developments are listed in Table 6. All the study intersections meet operating standards for “Existing plus Phase 1,” “Existing plus Stage II,” and “Existing plus Phase 1 plus Stage II” scenarios.

Table 6: Future Phase 1 Project and Stage II Intersection Operations Comparison

Intersection	Mobility Target/ Operating Standard	Existing + Phase 1			Existing + Stage II			Existing + Phase 1 + Stage II		
		Delay	*LOS*	*v/c*	*Delay*	*LOS*	*v/c*	*Delay*	*LOS*	*v/c*
SW Boones Ferry Road/SW 95th Avenue	LOS D	25.7	C	0.77	26.6	C	0.80	26.9	C	0.80
SW Elligsen Road/I-5 Southbound Ramp	LOS D and 0.90 v/c[a]	17.8	B	0.80	20.1	C	0.87	21.0	C	0.88
Boeckman Road/SW 95th Avenue	LOS D	18.7	B	0.45	19.3	B	0.49	20.5	C	0.51
Boeckman Road/SW Parkway Avenue	LOS D	38.9	D	0.87	46.6	D	0.91	49.3	D	0.93
SW Wilsonville Road/SW Boones Ferry Road	LOS D	38.4	D	0.79	51.3	D	0.91	52.7	D	0.92
SW Wilsonville Road/I-5 Southbound Ramp	LOS D and 0.90 v/c[a]	23.5	C	0.52	23.7	C	0.56	23.8	C	0.56
I-5 Southbound On-Ramp Meter	N/A	-	-	0.92	-	-	0.98	-	-	0.99

Delay = Average Intersection Delay (sec.) v/c = Volume-to-Capacity Ratio LOS = Level of Service

[a]The typical ODOT mobility target for interchange ramps is a 0.85 v/c ratio. However, when the interchange vicinity is fully developed and adequate storage is available on the interchange ramp to prevent queues from backing up on the main line, then the target can be increased to a 0.90 v/c ratio. This is the case for the both I-5 interchange areas in Wilsonville.

The study intersection operating conditions for the project trips during both Phase 1 and Phase 2 development and future Stage II developments are listed in Table 7. Again, all the study intersections meet operating standards for “Existing plus Phases 1 and 2,” “Existing plus Stage II,” and “Existing plus Phases 1 and 2 plus Stage II” scenarios.

Table 7: Future Phases 1 and 2 Project and Stage II Intersection Operations Comparison

Intersection	Mobility Target/ Operating Standard	Existing + Phases 1 and 2			Existing + Stage II			Existing + Phases 1 and 2 + Stage II		
		Delay	*LOS*	*v/c*	*Delay*	*LOS*	*v/c*	*Delay*	*LOS*	*v/c*
SW Boones Ferry Road/SW 95th Avenue	LOS D	26.0	C	0.78	26.6	C	0.80	27.1	C	0.81
SW Elligsen Road/I-5 Southbound Ramp	LOS D and 0.90 v/c[a]	17.9	B	0.81	20.1	C	0.87	21.6	C	0.89
Boeckman Road/SW 95th Avenue	LOS D	18.9	B	0.46	19.3	B	0.49	20.7	C	0.50
Boeckman Road/SW Parkway Avenue	LOS D	39.6	D	0.87	46.6	D	0.91	50.3	D	0.93
SW Wilsonville Road/SW Boones Ferry Road	LOS D	38.5	D	0.79	51.3	D	0.91	53.4	D	0.92
SW Wilsonville Road/I-5 Southbound Ramp	LOS D and 0.90 v/c[a]	23.4	C	0.52	23.7	C	0.56	23.9	C	0.57
I-5 Southbound On-Ramp Meter	N/A	-	-	0.92	-	-	0.98	-	-	0.99

Delay = Average Intersection Delay (sec.) v/c = Volume-to-Capacity Ratio LOS = Level of Service

[a]The typical ODOT mobility target for interchange ramps is a 0.85 v/c ratio. However, when the interchange vicinity is fully developed and adequate storage is available on the interchange ramp to prevent queues from backing up on the main line, then the target can be increased to a 0.90 v/c ratio. This is the case for the both I-5 interchange areas in Wilsonville.

Even though the SW Wilsonville Road/Southbound I-5 intersection does meet the 0.90 v/c mobility target for both Phase 1 and Phase 2, the southbound on-ramp signal meter is expected to experience an increase in future demand volumes during the peak hour. The on-ramp meter has a capacity of 1,260 vehicles per hour. These future demand projections would result in the ramp meter experiencing volume-to-capacity ratio of 0.99 by the completion of Phase 2.

Site Plan Evaluation

A site plan showing the proposed development can be found in the appendix. The site plan shows sufficient space for two way motor vehicle circulation except for trucks attempting to reach the proposed loading dock at the south side of the high tech building. Turn radius does not appear to be sufficient for trucks to arrive and depart from the loading dock based on a preliminary evaluation of the site plan provided. It is recommended that the project sponsor provide turn templates showing safe circulation to the loading dock or the project site should be reconfigured to accommodate truck turning movements.

The existing site accesses to the proposed DW Fritz site include two driveways along Boeckman Road. The east driveway provides access to the parking lots on the east side of the existing building. The west driveway connects to parking lots on the west side of the existing building and provides access to the proposed high tech building and restaurant.

City Code Requirement

The proposed 70,000 square-foot manufacturing building and 4,000 square-foot restaurant is required to comply with the City of Wilsonville Planning and Land Development code for the number of vehicular parking stalls and bicycle parking spaces that are provided on site.[4] Table 8 lists the vehicular and bicycle parking requirements for both the proposed building and the entire site, which are based on the types and square footage of the various building uses. The table also lists the peak parking demand, which is estimated based on parking data published by the Institute of Transportation Engineers (ITE).[5]

Table 8: Vehicular and Bicycle Parking Summary

Land Use (ITE Code)	Size (KSF[a])	Estimated Peak Demand[b]	Spaces Required by City Code[c]		
			Vehicle Minimum	*Vehicle Maximum*	*Bicycle Minimum*
New Building					
Manufacturing (Land Use 140)	70	83	112	No limit	7
Restaurant (Land Use 932)	4	65	61	92	4
Total New Building	**74**	**148**	**173**	**No limit**	**11**
Existing Building					
Manufacturing (Land Use 140)	155	183	248	No limit	16
Total Existing Building	**155**	**183**	**248**	**No limit**	**16**
TOTAL SITE	**229**	**331**	**421**	**No limit**	**27**

[a] KSF = 1,000 square feet

[b] Estimated demand based on 85th percentile identified in the *Parking Generation, 4th Edition*, Institute of Transportation Engineers, 2010.

[c] City of Wilsonville, Planning and Land Development Ordinance, Section 4.155, Table 5, Updated June 2013.

As shown in Table 8, 173 vehicular stalls are needed to meet the minimum City Code requirements for the new building and 148 stalls are needed to satisfy the estimated peak parking demand. For the entire site, 421 vehicular stalls are needed to meet the minimum City Code requirements and 331 stalls are needed to satisfy the estimated peak parking demand. Because the site is expected to have 529 parking stalls, the site is expected to have sufficient available parking. The table above also indicates that 27 bicycle parking spaces are needed at the project site to meet the minimum City Code requirements. Currently, the site plan does not show any bicycle parking spaces. At minimum, 27 bicycle parking spaces will need to be built on the project site and should be located near building entrances in order to provide convenient access.

Access Spacing and Sight Distance

The two existing driveways along Boeckman Road are spaced at approximately 460 feet from 95th Avenue, approximately 400 feet apart from each other, and approximately 560 feet from Kinsman and do not conform with the City's minimum access spacing standards (600 feet) in

[4] City of Wilsonville, Planning and Land Development Ordinance, Sections 4.154-4.198, Updated Feb. 2004.

[5] *Parking Generation*, 4rd Edition, Institute of Transportation Engineers, 2010.

the TSP[6] for a minor arterial. The existing accesses will require a variance to the City's access spacing standards.

Preliminary sight distance was evaluated at the existing site driveways on Boeckman Road and there were no concerns. Prior to occupancy, sight distance at any existing access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon to assure that buildings, signs or landscaping does not restrict sight distance.

Project Impact Summary

The DW Fritz development is anticipated to result in the following impacts:

Trip Generation

- The development is expected to be completed in two phases; Phase 1 includes a 155,000 square foot renovation to a currently vacant warehouse. Phase 2 includes the addition of a 70,000 square foot high tech building and a 4,000 square foot restaurant.
- Phase 1 of the development is expected to generate an additional 105 (38 in, 67 out) PM peak hour trips and Phases 1 and Phase 2 of the development is expected to generate an additional 164 (64 in, 100 out) net new PM peak hour trips.
- Of the 105 total Phase 1 project trips, 32 new PM peak hour trips are estimated to pass through the I-5/SW Elligsen Road interchange area and 21 PM peak hour trips through the I-5/Wilsonville Road interchange area.
- Of the 164 total Phase 1 and Phase 2 project trips, 49 new PM peak hour trips are estimated to pass through the I-5/SW Elligsen Road interchange area and 33 PM peak hour trips through the I-5/Wilsonville Road interchange area.

Intersection Operations

- All the study intersections meet the City's operating standard and ODOT mobility targets for all scenarios.

Site Plan Evaluation

- Turn radius does not appear to be sufficient for trucks to arrive and depart from the loading dock based on a preliminary evaluation of the site plan provided. It is recommended that the project sponsor provide turn templates showing safe circulation to the loading dock or the project site should be reconfigured to accommodate truck turning movements.

[6] City of Wilsonville Transportation System Plan, Table 3-2, Amended June 2016.

- The City Code requirement for vehicular parking is 421 parking stalls at the project site and the parking demand is estimated at 331 parking stalls. The site plan proposes 529 stalls, meeting the city code requirement and parking demand. The minimum bicycle parking stall requirement per City Code is 27 stalls. The site plan does not currently show any bicycle parking stalls.

Access Spacing and Sight Distance

- The driveways along Boeckman Road do not conform with the current minimum access spacing standards (600 feet) in the TSP for a minor arterial. The existing accesses will require a variance to the City's access spacing standards.
- Prior to occupancy, sight distance at any existing access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon to assure that buildings, signs or landscaping does not restrict sight distance.

CHAPTER 2: EXISTING CONDITIONS

This chapter provides documentation of existing study area conditions, including the study area roadway network, pedestrian and bicycle facilities, and existing traffic volumes and operations. Supporting details are provided in the appendix.

Project Site

The project sponsor plans to renovate the currently vacant manufacturing building (155,000 square feet) as part of Phase 1. A new high tech building (70,000 square feet) and restaurant (4,000 square feet) will be completed in Phase 2. The renovated manufacturing building and high tech building both include a combination of office space and warehouse space.

Study Area Roadway Network

Key roadways in the study area are summarized in Table 9 along with their existing (or proposed) roadway characteristics. The functional classifications for City of Wilsonville streets are provided in the *City of Wilsonville Transportation System Plan* (TSP).[7]

Table 9: Study Area Roadway Characteristics (within the Study Area)

Roadway	Classification	No. of Lanes	Posted Speed	Sidewalks	Bike Lanes	On-Street Parking
SW Elligsen Road	Major Arterial	4	35 mph	Yes	Yes	No
Boeckman Road	Minor Arterial	2	40 mph	Yes/No[a]	Yes	No
SW Parkway Avenue	Minor Arterial	3	45 mph	Yes/No[b]	Yes/No[b]	No
SW 95th Avenue	Minor Arterial	3	35 mph	Yes/No[c]	Yes	No
SW Wilsonville Road	Major Arterial	4	25 - 35 mph	Yes	Yes	No
SW Boones Ferry Road (Day Rd to I-5 SB Ramp)	Major Arterial	3-5	35 mph	Yes/No[d]	Yes	No
SW Boones Ferry Road (south of Ridder Rd)	Collector	2-3	35 mph	Partial	Partial	No

[a] No sidewalk between Parkway Ave and Boberg Rd
[b] Sidewalk and bike lane missing along segments of SW Parkway Ave
[c] No sidewalk on the west side between Boeckman Road and SW Hillman Ct
[d] No sidewalk on the west side

[7] *Wilsonville Transportation System Plan*, Adopted by Council, June 2013.

Pedestrian and Bicycle Facilities

Near the project site, Boeckman Road meets the City's standards for minor arterial and is improved with curbs, gutters, sidewalks and bike lanes on both sides of the street. The Kinsman Road extension that is currently under construction will run along the west side of the project site and is expected to have standard bike lanes and sidewalks once completed.

Public Transit Service

South Metro Area Regional Transit (SMART) operates several fixed routes that serve Wilsonville and the surrounding area.[8] Route 5 travels on Boeckman Road, SW 95th Avenue, and SW Boones Ferry Road and provides service between the SMART Central station in Wilsonville to SW Pioneer Court in Wilsonville. There are two stops along Route 5 that are located on SW 95th Avenue. Route 2X provides service from the SMART Central station in Wilsonville to Barbur Station in Portland. This route travels on SW Boones Ferry Road, SW Wilsonville Road, Parkway Avenue, and SW Elligsen Road. There are two stops located near SW Parkway Avenue/Boeckman Road intersection on Route 2X. At the SW Wilsonville Road/SW Boones Ferry Road intersection, many SMART transit stops are located as the SMART transit station is located half a mile north of the intersection.

The Kinsman Road extension will include transit route and stop improvements when it is complete (it is currently under construction).

Future Planned Projects

Funded Projects

The following is a list of planned and funded projects included in the Wilsonville TSP[9]. Both of these projects are currently under design. A map of these improvements can be seen in the appendix.

- **RW-P2 Additional Queuing Lane on Southbound I-5 Ramp:** Construct a third queuing lane on the southbound I-5 ramp at the I-5/Wilsonville Road interchange.
- **RE-08 Kinsman Road Extension (South):** Construct 2-lane roadway with bike lanes, sidewalks, and transit stop improvements from Barber Street to Boeckman Road; project also includes a roundabout at Kinsman Road/Boeckman Road intersection

[8] South Metro Area Regional Transit (SMART) operates several fixed routes that serve Wilsonville and make connections to TriMet in Portland, Cherriots in Salem, and Canby Area Transit. The City's transit center, "SMART Central at Wilsonville Station," provides connections to all SMART routes and to TriMet's Westside Express Service (WES) commuter rail station.

[9] *Wilsonville Transportation System Plan*, Adopted by Council, June 2013.

Unfunded Projects

The following is a list of planned but unfunded projects included in the Wilsonville TSP. A map of these improvements can be seen in the appendix.

- **BW-02 95th Avenue Sidewalk Infill:** Fill in the sidewalk network on the east side of 95th Avenue from Boeckman Road to Hillman Court, and construct transit stop improvements.
- **RW-01 Boeckman Road Bridge and Corridor Improvements:** Widen Boeckman Road from Boberg Road to 500 feet east of Parkway Avenue to include additional travel lanes in both directions along with bike lanes and sidewalks; project includes reconstruction of the bridge over I-5 and improvements at Boeckman Road/Boberg Road and Boeckman Road/Parkway Avenue intersections and adjacent transit stops.

Existing Traffic Volumes and Operations

Existing PM peak hour traffic operations were analyzed at the following study intersections based on coordination with city staff[10]:

- SW Boones Ferry Road/SW 95th Avenue
- SW Elligsen Road/ I-5 Southbound Ramp
- Boeckman Road/95th Avenue
- Boeckman Road/SW Parkway Avenue
- SW Wilsonville Road/SW Boones Ferry Road
- SW Wilsonville Road/I-5 Southbound Ramp

The counted volumes at these intersections were collected[11] during the PM peak hour when schools were in session. The volumes are shown in Figure 2. The following sections describe intersection performance measures, required operating standards, existing operating conditions, and field observations.

Intersection Performance Measures

Level of service (LOS) ratings and volume-to-capacity (v/c) ratios are two commonly used performance measures that provide a good picture of intersection operations.

- **Level of service (LOS):** A "report card" rating (A through F) based on the average delay experienced by vehicles at the intersection.[12] LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. LOS D

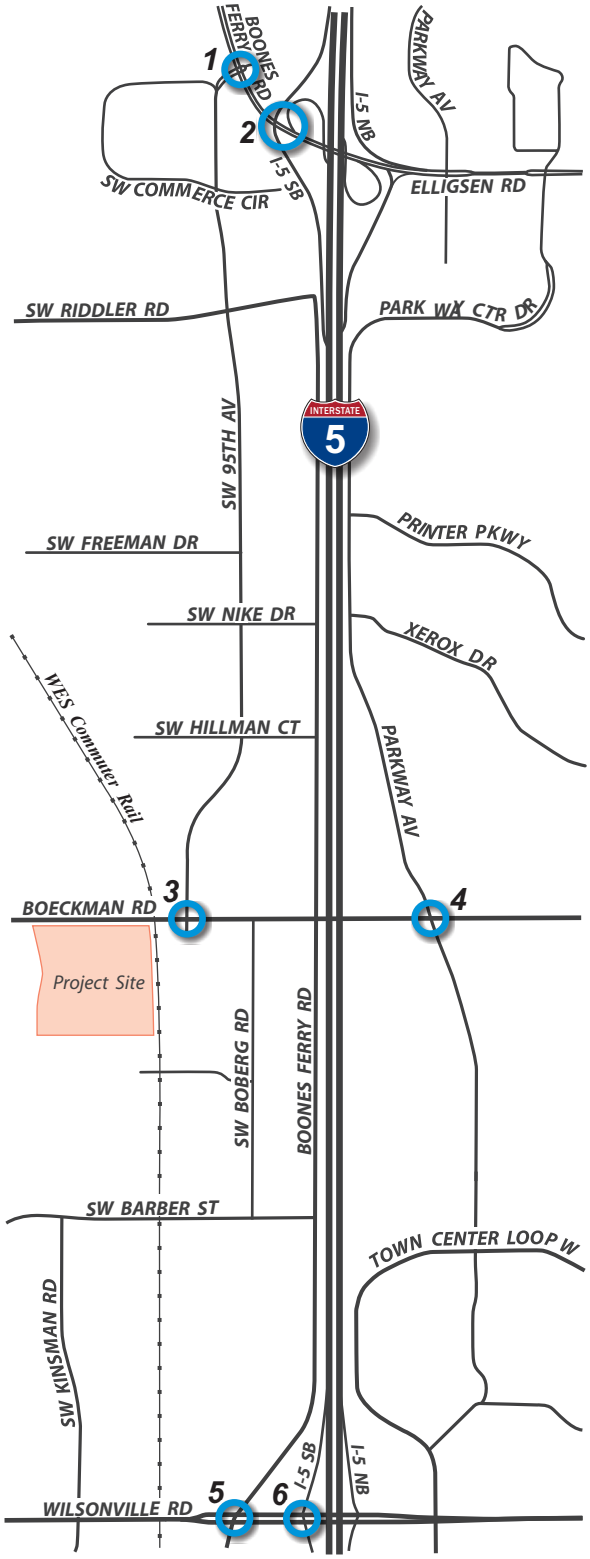
[10] Phone conversation with Steve Adams, City of Wilsonville, March 29th, 2017.

[11] Traffic data was collected on June 7th, 2017 by All Traffic Data.

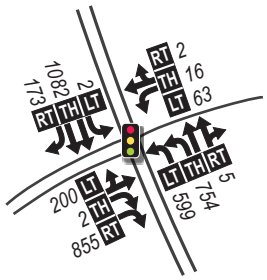
[12] A description of Level of Service (LOS) is provided in the appendix and includes a list of the delay values (in seconds) that correspond to each LOS designation.

and E are progressively worse operating conditions. LOS F represents conditions where average vehicle delay has become excessive and demand has exceeded capacity.

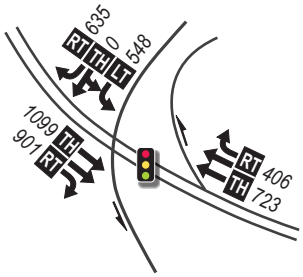
- **Volume-to-capacity (v/c) ratio:** A decimal representation (typically between 0.00 and 1.00) of the proportion of capacity that is being used at a turn movement, approach leg, or intersection. It is determined by dividing the peak hour traffic volume by the hourly capacity of a given intersection or movement. A lower ratio indicates smooth operations and minimal delays. As the ratio approaches 1.00, congestion increases and performance is reduced. If the ratio is greater than 1.00, the turn movement, approach leg, or intersection is oversaturated and usually results in excessive queues and long delays.



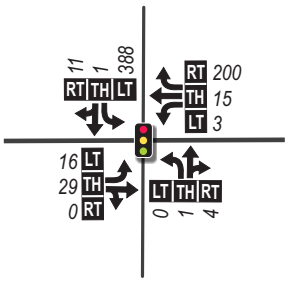
1. SW Boones Ferry Rd. @ SW 95th Ave.



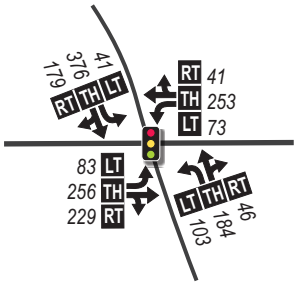
2. I-5 SB @ Elligsen Rd. / Boones Ferry Rd.



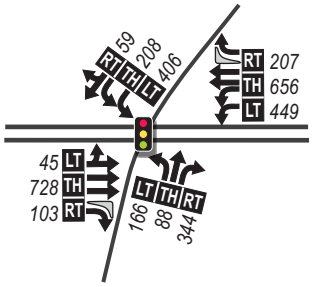
3. Boeckman Rd. @ SW 95th Ave.



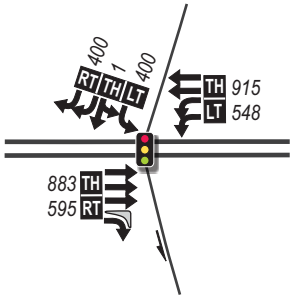
4. Boeckman Rd. @ SW Parkway Ave.



5. SW Boones Ferry Rd. @ SW Wilsonville Rd.



6. SW Wilsonville Rd. @ I-5 Southbound Ramp



LEGEND

- # - Study Intersection
- Traffic Signal
- STOP - Stop Sign
- Lane Configuration
- *000* - PM Peak Hour Traffic Volumes
- LT TH RT (Left•Thru•Right) - Volume Turn Movement

DKS

No Scale

Figure **2**

2017 Existing Conditions PM Peak Hour Traffic Volumes

Required Operating Standards

The City of Wilsonville requires the study intersection of public streets to meet its minimum acceptable level of service (LOS) standard, which is LOS D for peak periods.[13] The typical ODOT mobility target for interchange ramps is a 0.85 v/c ratio.[14]

However, when the interchange vicinity is fully developed and adequate storage is available on the interchange ramp to prevent queues from backing up on the main line, then the target can be increased to a 0.90 v/c ratio. This is the case for the both I-5 interchange areas in Wilsonville. While private driveway approaches are not required by City code to meet the City's LOS standard, the safety and operations of these driveways are still considered.

Existing Operating Conditions

Existing traffic operations at the study intersection were determined for the PM peak hour based on the 2000 Highway Capacity Manual methodology for signalized intersection.[15] The results were then compared with the City of Wilsonville's minimum acceptable level of service (LOS) operating standard of LOS D or better and the ODOT Mobility Target of v/c ratio of 0.90 or better. Table 10 lists the estimated delay, LOS, and v/c ratio of each study intersection. The existing study intersections currently meet mobility targets and operating standards.

Table 10: Existing PM Peak Study Intersection Operations

Intersection	Mobility Targets/ Operating Standard	Existing PM Peak		
		Delay	*LOS*	*v/c*
SW Boones Ferry Road/SW 95th Avenue	LOS D	25.5	C	0.77
SW Elligsen Road/I-5 Southbound Ramp	LOS D and 0.90 v/c[a]	17.7	B	0.79
Boeckman Road/SW 95th Avenue	LOS D	17.2	B	0.44
Boeckman Road/SW Parkway Avenue	LOS D	37.0	D	0.85
SW Wilsonville Road/SW Boones Ferry Road	LOS D	38.3	D	0.78
SW Wilsonville Road/I-5 Southbound Ramp	LOS D and 0.90 v/c[a]	23.6	C	0.52
I-5 Southbound On-Ramp Meter	N/A	-	-	0.91

Delay = Average Intersection Delay (sec.) LOS = Level of Service v/c = Volume-to-Capacity Ratio

[a]The typical ODOT mobility target for interchange ramps is a 0.85 v/c ratio. However, when the interchange vicinity is fully developed and adequate storage is available on the interchange ramp to prevent queues from backing up on the main line, then the target can be increased to a 0.90 v/c ratio. This is the case for the both I-5 interchange areas in Wilsonville.

It is important to note that the intersection operations at the study intersections shown in Table 2 represent typical operations. What this analysis does not include is incurred delay from incidents

[13] *City of Wilsonville Code*, City of Wilsonville Section 4.140, p.163.

[14] Table 6, Page 84, 1999 Oregon Highway Plan, Oregon Department of Transportation, Amended May 2015.

[15] *2000 & 2010 Highway Capacity Manual*, Transportation Research Board, Washington DC, 2000/2010.

on the I-5 mainline and the ramp meter on the I-5 southbound ramp at Wilsonville Road that regulates the flow of traffic onto I-5.

The existing capacity of this ramp meter is 1,260 vehicles per hour. If the peak hour demand of the southbound on-ramp exceeds 1,260 vehicles, additional storage would be necessary to prevent spillback and associated impacts on SW Wilsonville Road.

Currently, approximately 1,144 vehicles are entering the southbound on-ramp during the peak hour which results in a volume to capacity (v/c) ratio of 0.91 which is nearing the ramp's full capacity. When traffic incidents occur on I-5 and I-205 such that the additional traffic exceeds the 1,260 vehicles or the I-5 mainline cannot deliver the existing traffic flow, the I-5/SW Wilsonville Road interchange is significantly impacted and vehicles experience traffic delays similar to level of service "F" (greater than 80 seconds of delay).

Field Observations

DKS observed the DW Fritz Renovation project area and the study intersections during the PM peak hour on a typical weekday to identify unique aspect of the project area and the study intersection operations. Observations were also taken to verify that actual intersection operations were consistent with the analysis results.[16] Notable observations included:

Project Site and Driveways

- No sight distance issues were observed at either of the existing project site driveways.
- Boeckman Road in front of the project site was temporarily closed to through traffic due to construction on the Kinsman Road extension (see photo below, left).

Boeckman Road closed in front of project site due to construction (left) and queues on the southbound approach at Boeckman Road/SW Parkway Avenue

[16] Field visit conducted on Thursday, July 13, 2017.

SW Boones Ferry Road/SW 95th Avenue

- Queues on the southbound approach reached as far back as the Day Rd intersection (see photo below, left) and queues on the northbound approach spilled back to the I-5 southbound off-ramp intersection (see photo below, right)

Queues at SW Boones Ferry Road/SW 95th Avenue southbound approach (left) and queues on the northbound approach (right)

Boeckman Road/SW Parkway Avenue

Approximately eleven vehicles were observed to be queuing during PM peak hour (see photo above, right) in both the southbound and eastbound directions.

- Eastbound vehicles were seen taking short gaps on right-turns-on-red.

SW ElligsenRoad/I-5 Southbound Ramp

- Queues on the I-5 southbound on-ramp backed up onto Elligsen Road just past the ramp intersection. There is currently no ramp meter at this location.

Queues at SW Elligsen Road/I-5 Southbound Ramp

SW Wilsonville Road/I-5 Southbound Ramp and SW Wilsonville Road/SW Boones Ferry Road

- Queues on the I-5 southbound on-ramp reached capacity during the PM peak hour and backed up to Wilsonville Road (see two photos below)
- Queues on Wilsonville Road from the I-5 southbound ramp prevent northbound right turns and southbound left turns at SW Wilsonville Road/SW Boones Ferry Road intersection from entering the intersection during peak hours.

Looking east at the SW Wilsonville Road/I-5 southbound on-ramp intersection. Vehicle can be seen in intersection when cross traffic has green light.

CHAPTER 3: PROJECT IMPACTS

This chapter reviews the impacts that the proposed DW Fritz development may have on the study area transportation system. This analysis includes site plan evaluation, trip generation, trip distribution, and future year traffic volumes and operating conditions. The focus of the impact analysis is on the following study intersection identified by City of Wilsonville staff:

- SW Boones Ferry Road/SW 95th Avenue
- SW Elligsen Road/ I-5 Southbound Ramp
- Boeckman Road/95th Avenue
- Boeckman Road/SW Parkway Avenue
- SW Wilsonville Road/SW Boones Ferry Road
- SW Wilsonville Road/I-5 Southbound Ramp

Proposed Development

The proposed development involves renovating and occupying the existing 155,000 square foot industrial building. In addition, there will be a new 70,000 square foot high tech building and a 4,000 square foot sit-down restaurant. This development will have two existing driveways along Boeckman Road.

Trip Generation

Trip generation is the method used to estimate the number of vehicles added to site driveways and the adjacent roadway network by a development during a specified period (i.e., such as the PM peak hour). For this study, typical ITE trip generation data was used which is based on national land use data.[17]

Table 11 provides the trip generation for the proposed office and warehousing space renovation (Phase 1). The Phase 1 development is expected to generate approximately 105 total (38 in, 67 out) PM peak hour trips.

Table 11: PM Peak Hour Primary Trip Generation Phase 1

Phase	Land Use (ITE Code)	Building area (square feet)	Trip Rate per 1,000 square feet	In	Out	Total
1	Manufacturing (140)	155,000	0.68[a]	38	67	**105**
			Phase 1 Total Primary Trips	38	67	**105**

[a]Rate back-calculated from ITE equation

[17] Intersection turning movements counts were collected on Tuesday, January 24, 2017. Additionally 24-hour bi-directional counts were collected on Tuesday thru Thursday, February 21, 22, and 23, 2017. Data was collected by All Traffic Data.

Table 12 provides the trip generation for both the renovated building and the additions of the high tech building and restaurant (Phase 2). It should be noted that the Phase 2 ITE equation trip generation associated with the manufacturing land use is lower than what was assumed in Phase 1. The ITE data has a trip rate that decreases as the total square footage increases. The proposed Phase 1 and Phase 2 development is expected to generate approximately 183 (75 in, 108 out) PM peak hour primary trips.

Table 12: PM Peak Hour Primary Trip Generation Phases 1 & 2

Phase	Land Use (ITE Code)	Building area (square feet)	Trip Rate per 1,000 square feet	In	Out	Total
1 and 2	Manufacturing (140)	155,000 + 70,000	0.64[a]	52	44	**144**
2	Restaurant (932)	4,000	9.85	23	16	**39**
		Phases 1 & 2 Total Primary Trips		75	108	**183**

[a]Rate back-calculated from ITE equation

As per ITE guidance,[18] two reductions in primary trips were included in the trip generation analysis; internal trips and pass-by trips. The following paragraphs discuss these reductions and Table 13 displays the total net new trips after accounting for the internal and pass-by trip reductions.

Internal Trips. A reduction of internal trips was evaluated to reduce the total number of driveway trips to account for trips between uses (for example employees from the industrial uses staying to eat at the restaurant). An internal capture rate of 10% was applied to the PM peak hour primary trips of the restaurant. Internal trip reductions are shown in Table 13.

Pass-By Trips. A reduction of pass-by trips was evaluated for the proposed sit down restaurant to account for traffic that currently exists on the adjacent roadways that the proposed project will have primary access. Pass-by trips are subtracted out after the internal trips are applied and for this project, were only applied to the restaurant trip generation. Pass-by rate of 43% was taken from the ITE Trip Generation Handbook.[19] Pass-by trips result in new driveway trips only and will not increase traffic to the adjacent roadways. Table 13 shows the reduction in primary trips due to pass-by trips for the sit down restaurant.

[18] Institute of Transportation Engineers, Trip Generation Handbook, October 1998.
[19] Institute of Transportation Engineers, Trip Generation Handbook, October 1998. Table F.30, Land Use Code 932.

Table 13: PM Peak Hour Net New Trips

	In	Out	Total
Total Primary Trips (Phases 1 and 2)	75	108	**183**
Internal Trip Reduction (10% of restaurant trips)	-2	-2	**-4**
Pass-By Trip Reduction (43% of restaurant trips)	-9	-6	**-15**
Net New Trips (Phase 1 and Phase 2)	64	100	**164**

After reducing the primary project restaurant trips in Phase 2 by the internal trip reduction of 10% and then the pass-by trips for the restaurant (43%), the net new total trips to the project site is 164 (64 in/ 100 out) during the PM peak hour.

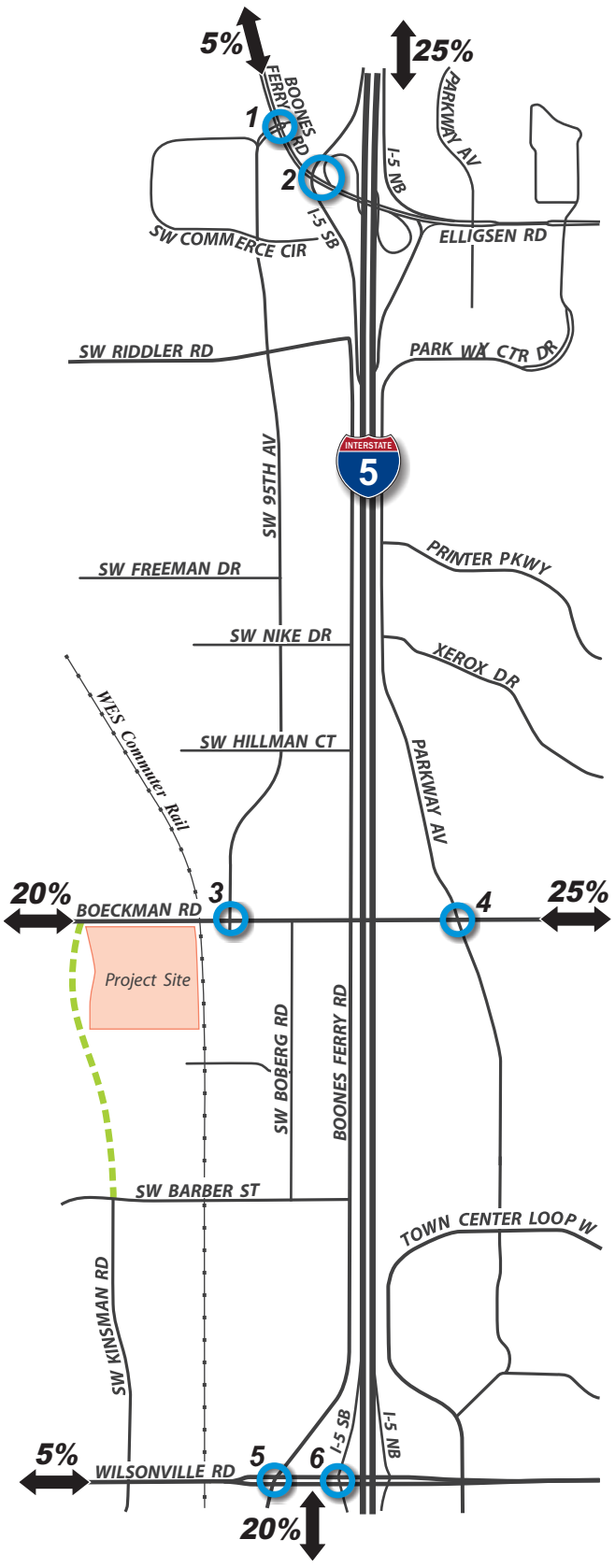
Trip Distribution

Trip distribution provides an estimate of where project-related trips would be coming from and going to. It is given as percentages at key gateways to the study area and is used to route project trips through the study intersections. Figure 3 shows the expected trip distribution and project trip routing for the additional traffic generated by the DW Fritz project. The trip distribution was estimated using the City of Wilsonville travel demand model.[20] The RE-08 Kinsman Road Extension (South) project is expected to be completed prior to the completion of the DW Fritz project. Therefore, project trips are shown to use this route in the trip distribution applied.

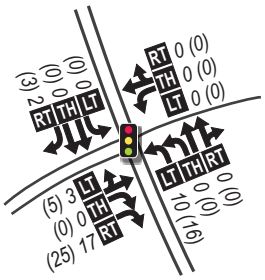
Project Trips Through City of Wilsonville Interchange Areas

The project trips through the two City of Wilsonville I-5 interchange areas were estimated based on the trip generation and distribution assumptions. The proposed DW Fritz development is expected to generate 32 PM peak hour trips for Phase 1 and a total of 49 PM peak hour trips for Phases 1& 2 through the I-5/SW Elligsen Road interchange area. The development is expected to generated 21 PM peak hour trips for Phase 1 and 33 PM peak hour trips for Phases 1 & 2 through the I-5/Wilsonville Road interchange area.

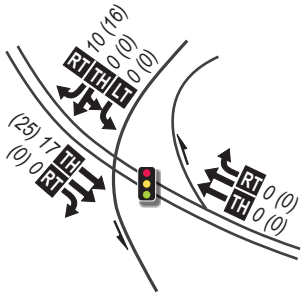
[20] *Wilsonville Travel Forecast Model, Select zone model run for DW Fritz Traffic Analysis Zone.*



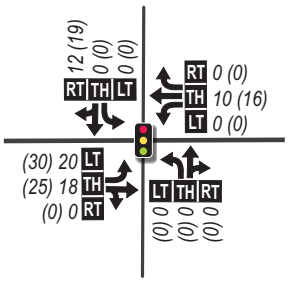
1. SW Boones Ferry Rd. @ SW 95th Ave.



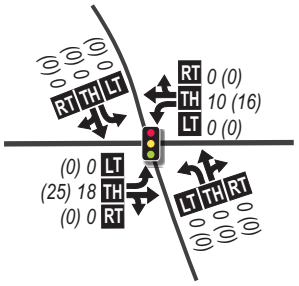
2. I-5 SB @ Elligsen Rd. / Boones Ferry Rd.



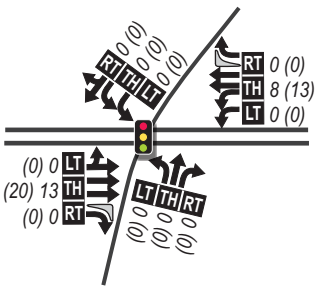
3. Boeckman Rd. @ SW 95th Ave.



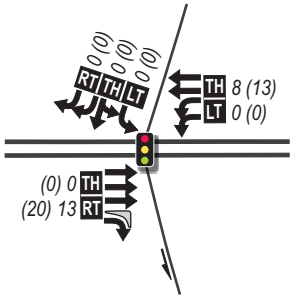
4. Boeckman Rd. @ SW Parkway Ave.



5. SW Boones Ferry Rd. @ SW Wilsonville Rd.



6. SW Wilsonville Rd. @ I-5 Southbound Ramp



LEGEND

- # - Study Intersection
- Traffic Signal
- Planned Connection
- STOP - Stop Sign
- Lane Configuration
- 000 (000) - Phase 1 (Phases 1 & 2) PM Peak Hour Traffic Volumes
- LT TH RT (Left • Thru • Right) - Volume Turn Movement
- 00% - Trip Distribution Percentage

DKS

No Scale

Figure **3**

Trip Distribution & Project Trips PM Peak Hour Traffic Volumes

Future Traffic Volumes and Operating Conditions

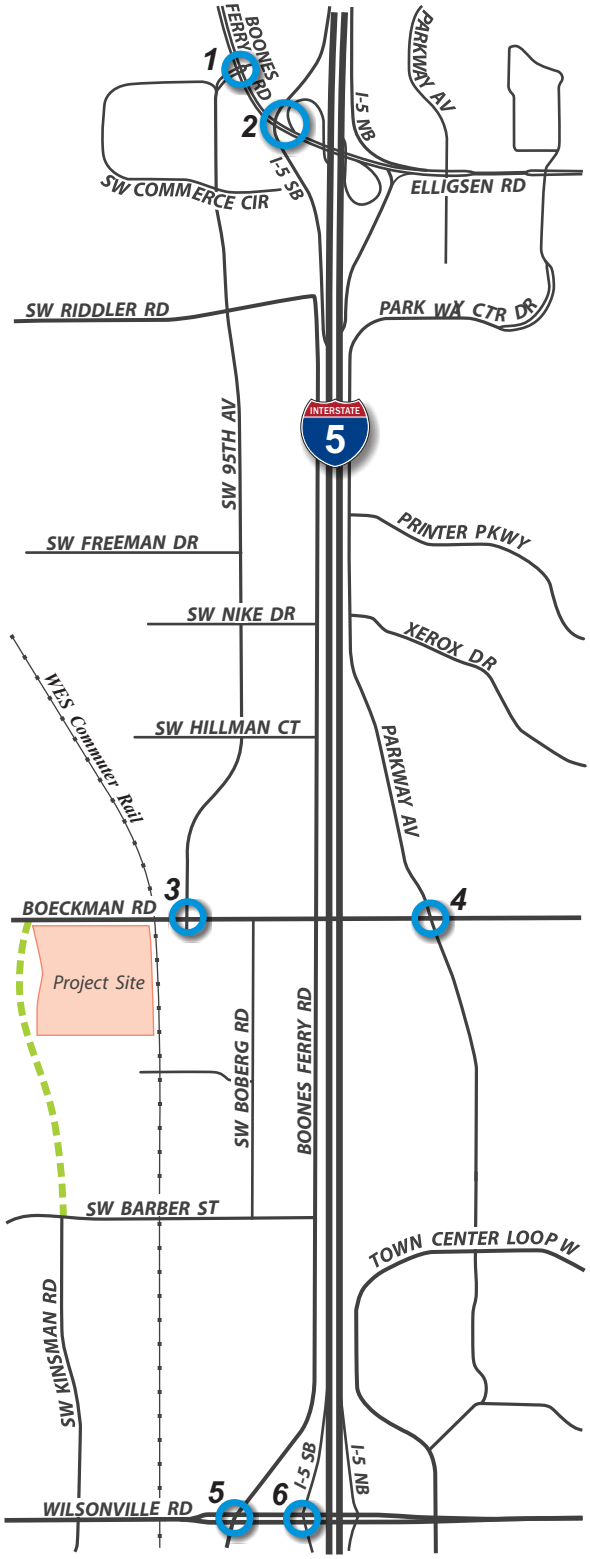
The proposed DW Fritz renovation includes a combination of office, manufacturing, and restaurant space which will be completed in two phases. The first phase involves renovating the existing 155,000 square foot office and warehouse building. The second phase will add a new 70,000 square foot high tech building and a new 4,000 square foot sit-down restaurant to the project site. Future operating conditions were analyzed at the study intersections for the following future traffic scenarios. The comparison of the following scenarios enables the assessment of project impacts:

- Existing + Stage II (includes traffic from other developments with Stage II approval or are under construction)
- Existing + Project Phase 1
- Existing + Project Phase 1 + Stage II
- Existing + Project (Phase 1 and Phase 2)
- Existing + Project (Phase 1 and Phase 2) + Stage II

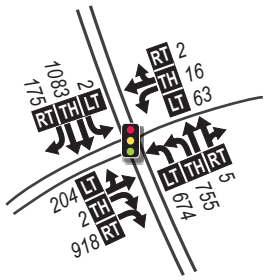
Future traffic volumes were estimated at the study intersection for each scenario. The future operating scenarios include various combinations of three types of traffic: existing, project, and Stage II. Stage II development trips are estimated based on the list of currently approved Stage II developments provided by City staff.[21] The Stage II list and the corresponding PM peak hour trip generation estimates for these developments are included in the appendix.

Figure 4 show the PM peak hour traffic volumes used to analyze the "Existing plus Stage II" scenario. Figure 5 and Figure 6 show the PM peak hour traffic volumes used to analyze the "Existing plus Project" and "Existing plus Project plus Stage II" scenarios for each project phase.

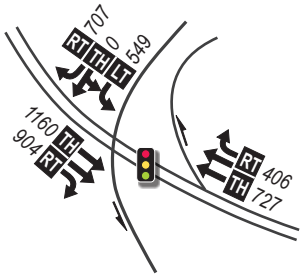
[21] Email from Daniel Pauly, City of Wilsonville, June 16, 2017 (see appendix for Stage II list).



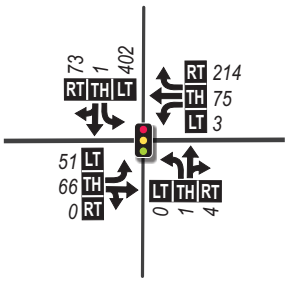
1. SW Boones Ferry Rd. @ SW 95th Ave.



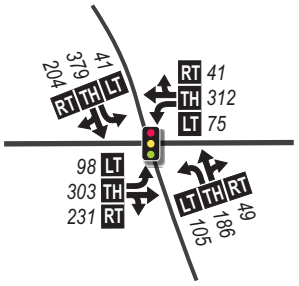
2. I-5 SB @ Elligsen Rd. / Boones Ferry Rd.



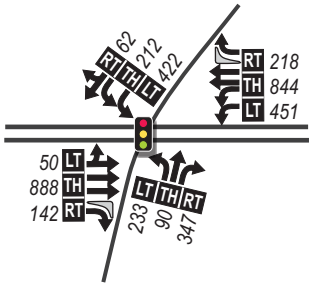
3. Boeckman Rd. @ SW 95th Ave.



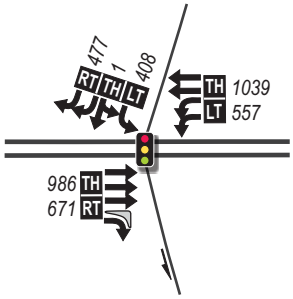
4. Boeckman Rd. @ SW Parkway Ave.



5. SW Boones Ferry Rd. @ SW Wilsonville Rd.



6. SW Wilsonville Rd. @ I-5 Southbound Ramp



LEGEND

- # - Study Intersection
- Traffic Signal
- Planned Connection
- STOP - Stop Sign
- Lane Configuration
- *000* - PM Peak Hour Traffic Volumes
- LT TH RT (Left•Thru•Right) - Volume Turn Movement

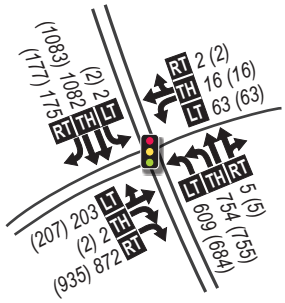
DKS

No Scale

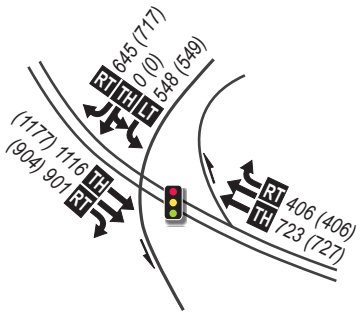
Figure 4

2017 Existing Conditions + Stage II PM Peak Hour Traffic Volumes

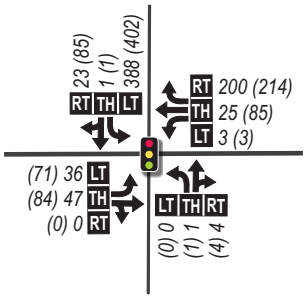
1. SW Boones Ferry Rd. @ SW 95th Ave.



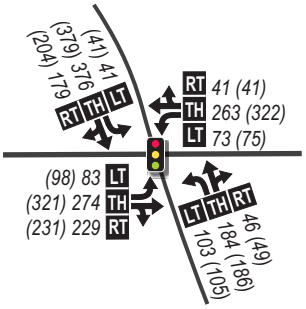
2. I-5 SB @ Elligsen Rd. / Boones Ferry Rd.



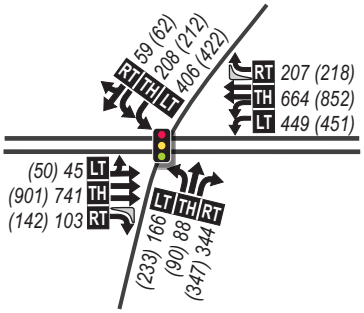
3. Boeckman Rd. @ SW 95th Ave.



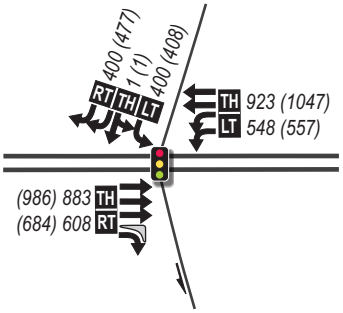
4. Boeckman Rd. @ SW Parkway Ave.



5. SW Boones Ferry Rd. @ SW Wilsonville Rd.



6. SW Wilsonville Rd. @ I-5 Southbound Ramp



LEGEND

- # - Study Intersection
- Traffic Signal
- Planned Connection
- STOP - Stop Sign
- Lane Configuration
- *000 (000)* - Existing + Phase 1 (Existing + Phase 1 + Stage II) PM Peak Hour Traffic Volumes
- LT TH RT - Volume Turn Movement (Left•Thru•Right)

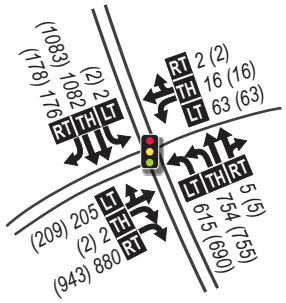
DKS

No Scale

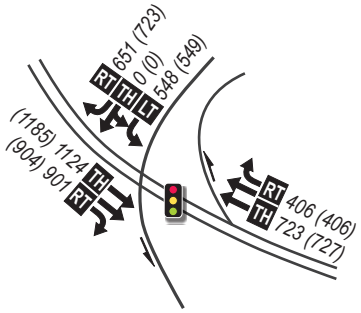
Figure 5

Existing + Project Phase 1 PM Peak Hour Traffic Volumes

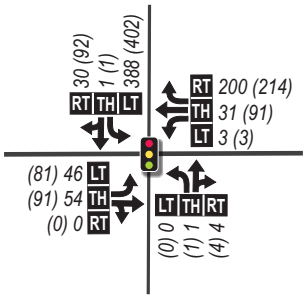
1. SW Boones Ferry Rd. @ SW 95th Ave.



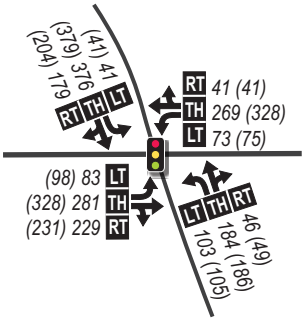
2. I-5 SB @ Elligsen Rd. / Boones Ferry Rd.



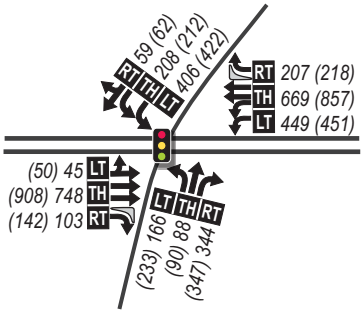
3. Boeckman Rd. @ SW 95th Ave.



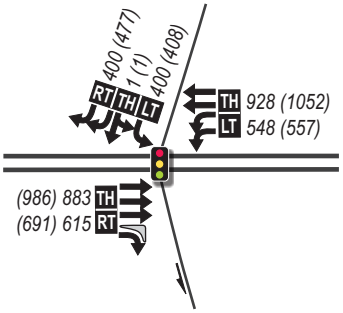
4. Boeckman Rd. @ SW Parkway Ave.



5. SW Boones Ferry Rd. @ SW Wilsonville Rd.



6. SW Wilsonville Rd. @ I-5 Southbound Ramp



LEGEND

- # - Study Intersection
- Traffic Signal
- Planned Connection
- STOP - Stop Sign
- Lane Configuration
- 000 (000) - Existing + Phases 1 & 2 (Existing + Phases 1 & 2 + Stage II) PM Peak Hour Traffic Volumes
- LT TH RT (Left•Thru•Right) - Volume Turn Movement

DKS

No Scale

Figure 6

Existing + Project Phases 1 & 2 PM Peak Hour Traffic Volumes

Intersection Operations

The study intersection operating conditions for the project trips during Phase 1 development and future Stage II developments are listed in Table 14. All the study intersections meet operating standards for "Existing plus Phase 1," "Existing plus Stage II," and "Existing plus Project (Phase 1) plus Stage II" scenarios.

Table 14: Future Project (Phase 1) and Stage II Intersection Operations Comparison

Intersection	Mobility Target/ Operating Standard	Existing + Phase 1			Existing + Stage II			Existing + Phase 1 + Stage II		
		Delay	*LOS*	*v/c*	*Delay*	*LOS*	*v/c*	*Delay*	*LOS*	*v/c*
SW Boones Ferry Road/SW 95th Avenue	LOS D	25.7	C	0.77	26.6	C	0.80	26.9	C	0.80
SW Elligsen Road/I-5 Southbound Ramp	LOS D and 0.90 v/c[a]	17.8	B	0.80	20.1	C	0.87	21.0	C	0.88
Boeckman Road/SW 95th Avenue	LOS D	18.7	B	0.45	19.3	B	0.49	20.5	C	0.51
Boeckman Road/SW Parkway Avenue	LOS D	38.9	D	0.87	46.6	D	0.91	49.3	D	0.93
SW Wilsonville Road/SW Boones Ferry Road	LOS D	38.4	D	0.79	51.3	D	0.91	52.7	D	0.92
SW Wilsonville Road/I-5 Southbound Ramp	LOS D and 0.90 v/c[a]	23.5	C	0.52	23.7	C	0.56	23.8	C	0.56
I-5 Southbound On-Ramp Meter	N/A	-	-	0.92	-	-	0.98	-	-	0.99

Delay = Average Intersection Delay (sec.) v/c = Volume-to-Capacity Ratio LOS = Level of Service

[a]The typical ODOT mobility target for interchange ramps is a 0.85 v/c ratio. However, when the interchange vicinity is fully developed and adequate storage is available on the interchange ramp to prevent queues from backing up on the main line, then the target can be increased to a 0.90 v/c ratio. This is the case for the both I-5 interchange areas in Wilsonville.

The study intersection operating conditions for the project trips during Phases 1 and 2 development and future Stage II developments are listed in Table 15. Again, all the study intersections meet operating standards for "Existing plus Phases 1 & 2," "Existing plus Stage II," and "Existing plus Phases 1 and 2 plus Stage II" scenarios.

Table 15: Future Project (Phases 1 and 2) and Stage II Intersection Operations Comparison

Intersection	Mobility Target/ Operating Standard	Existing + Phases 1 and 2			Existing + Stage II			Existing + Phases 1 and 2 + Stage II		
		Delay	*LOS*	*v/c*	*Delay*	*LOS*	*v/c*	*Delay*	*LOS*	*v/c*
SW Boones Ferry Road/SW 95th Avenue	LOS D	26.0	C	0.78	26.6	C	0.80	27.1	C	0.81
SW Elligsen Road/I-5 Southbound Ramp	LOS D and 0.90 v/c[a]	17.9	B	0.81	20.1	C	0.87	21.6	C	0.89
Boeckman Road/SW 95th Avenue	LOS D	18.9	B	0.46	19.3	B	0.49	20.7	C	0.50
Boeckman Road/SW Parkway Avenue	LOS D	39.6	D	0.87	46.6	D	0.91	50.3	D	0.93
SW Wilsonville Road/SW Boones Ferry Road	LOS D	38.5	D	0.79	51.3	D	0.91	53.4	D	0.92
SW Wilsonville Road/I-5 Southbound Ramp	LOS D and 0.90 v/c[a]	23.4	C	0.52	23.7	C	0.56	23.9	C	0.57
I-5 Southbound On-Ramp Meter	N/A	-	-	0.92	-	-	0.98	-	-	0.99

Delay = Average Intersection Delay (sec.) v/c = Volume-to-Capacity Ratio LOS = Level of Service

[a]The typical ODOT mobility target for interchange ramps is a 0.85 v/c ratio. However, when the interchange vicinity is fully developed and adequate storage is available on the interchange ramp to prevent queues from backing up on the main line, then the target can be increased to a 0.90 v/c ratio. This is the case for the both I-5 interchange areas in Wilsonville.

Even though the SW Wilsonville Road/Southbound I-5 intersection does meet the 0.90 v/c mobility target for both Phase 1 and Phase 2, the southbound on-ramp signal meter is expected to experience an increase in future demand volumes during the peak hour. The on-ramp meter has a capacity of 1,260 vehicles per hour. These future demand projections would result in the ramp meter experiencing volume-to-capacity ratio of 0.99 by the completion of Phase 2.

Site Plan Evaluation

A site plan showing the proposed development can be found in the appendix. The site plan shows sufficient space for two way motor vehicle circulation except for trucks attempting to reach the proposed loading dock at the south side of the high tech building. Turn radius does not appear to be sufficient for trucks to arrive and depart from the loading dock based on a preliminary evaluation of the site plan provided. It is recommended that the project sponsor provide turn templates showing safe circulation to the loading dock or the project site should be reconfigured to accommodate truck turning movements.

The existing site accesses to the proposed DW Fritz site include two driveways along Boeckman Road. The east driveway provides access to the parking lots on the east side of the

existing building. The west driveway connects to parking lots on the west side of the existing building and provides access to the proposed high tech building and restaurant.

City Code Requirement

The proposed 70,000 square-foot manufacturing building and 4,000 square-foot restaurant is required to comply with the City of Wilsonville Planning and Land Development code for the number of vehicular parking stalls and bicycle parking spaces that are provided on site.[22] Table 16 lists the vehicular and bicycle parking requirements for both the proposed building and the entire site, which are based on the types and square footage of the various building uses. The table also lists the peak parking demand, which is estimated based on parking data published by the Institute of Transportation Engineers (ITE).[23]

Table 16: Vehicular and Bicycle Parking Summary

Land Use (ITE Code)	Size (KSF[a])	Estimated Peak Demand[b]	Spaces Required by City Code[c]		
			Vehicle Minimum	*Vehicle Maximum*	*Bicycle Minimum*
New Building					
Manufacturing (Land Use 140)	70	83	112	No limit	7
Restaurant (Land Use 932)	4	65	61	92	4
Total New Building	**74**	**148**	**173**	**No limit**	**11**
Existing Building					
Manufacturing (Land Use 140)	155	183	248	No limit	16
Total Existing Building	**155**	**183**	**248**	**No limit**	**16**
TOTAL SITE	**229**	**331**	**421**	**No limit**	**27**

[a] KSF = 1,000 square feet

[b] Estimated demand based on 85th percentile identified in the *Parking Generation, 4th Edition*, Institute of Transportation Engineers, 2010.

[c] City of Wilsonville, Planning and Land Development Ordinance, Section 4.155, Table 5, Updated June 2013.

As shown in Table 16, 173 vehicular stalls are needed to meet the minimum City Code requirements for the new building and 148 stalls are needed to satisfy the estimated peak parking demand. For the entire site, 421 vehicular stalls are needed to meet the minimum City Code requirements and 331 stalls are needed to satisfy the estimated peak parking demand. Because the site is expected to have 529 parking stalls, the site is expected to have sufficient available parking. The table above also indicates that 27 bicycle parking spaces are needed at the project site to meet the minimum City Code requirements. Currently, the site plan does not show any bicycle parking spaces. At minimum, 27 bicycle parking spaces will need to be built on the project site and should be located near building entrances in order to provide convenient access.

[22] City of Wilsonville, Planning and Land Development Ordinance, Sections 4.154-4.198, Updated Feb. 2004.

[23] *Parking Generation*, 4rd Edition, Institute of Transportation Engineers, 2010.

Access Spacing and Sight Distance

The two existing driveways along Boeckman Road are spaced at approximately 460 feet from 95th Avenue, approximately 400 feet apart from each other, and approximately 560 feet from Kinsman and do not conform with the City's minimum access spacing standards (600 feet) in the TSP for a minor arterial.[24] The existing accesses will require a variance to the City's access spacing standards.

Preliminary sight distance was evaluated at the existing site driveways on Boeckman Road and there were no concerns. Prior to occupancy, sight distance at any existing access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon to assure that buildings, signs or landscaping does not restrict sight distance.

Project Impact Summary

The DW Fritz development is anticipated to result in the following impacts:

Trip Generation

- The development is expected to be completed in two phases; Phase 1 includes a 155,000 square foot renovation to a currently vacant warehouse. Phase 2 includes the addition of a 70,000 square foot high tech building and a 4,000 square foot restaurant.
- Phase 1 of the development is expected to generate an additional 105 (38 in, 67 out) PM peak hour trips and Phases 1 & 2 of the development is expected to generate an additional 164 (64 in, 100 out) PM peak hour trips.
- Of the 105 total Phase 1 project trips, 32 new PM peak hour trips are estimated to pass through the I-5/SW Elligsen Road interchange area and 21 PM peak hour trips through the I-5/Wilsonville Road interchange area.
- Of the total 164 Phase 1 and Phase 2 project trips, 49 new PM peak hour trips are estimated to pass through the I-5/SW Elligsen Road interchange area and 33 PM peak hour trips through the I-5/Wilsonville Road interchange area.

Intersection Operations

- All the study intersections meet the operating standard/mobility targets for all scenarios.

Site Plan Evaluation

- Turn radius does not appear to be sufficient for trucks to arrive and depart from the loading dock based on a preliminary evaluation of the site plan provided. It is recommended that the project sponsor provide turn templates showing safe circulation

[24] City of Wilsonville Transportation System Plan, Table 3-2, Amended June 2016.

to the loading dock or the project site should be reconfigured to accommodate truck turning movements.

- The City Code requirement for vehicular parking is 421 parking stalls at the project site and the parking demand is estimated at 331 parking stalls. The site plan proposes 529 stalls, meeting the city code requirement and parking demand. The minimum bicycle parking stall requirement per City Code is 27 stalls. The site plan does not currently show any bicycle parking stalls.

Access Spacing and Sight Distance

- The driveways along Boeckman Road do not conform with the current minimum access spacing standards (600 feet) in the TSP for a minor arterial. The existing accesses will require a variance to the City's access spacing standards.
- Prior to occupancy, sight distance at any existing access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon to assure that buildings, signs or landscaping does not restrict sight distance.

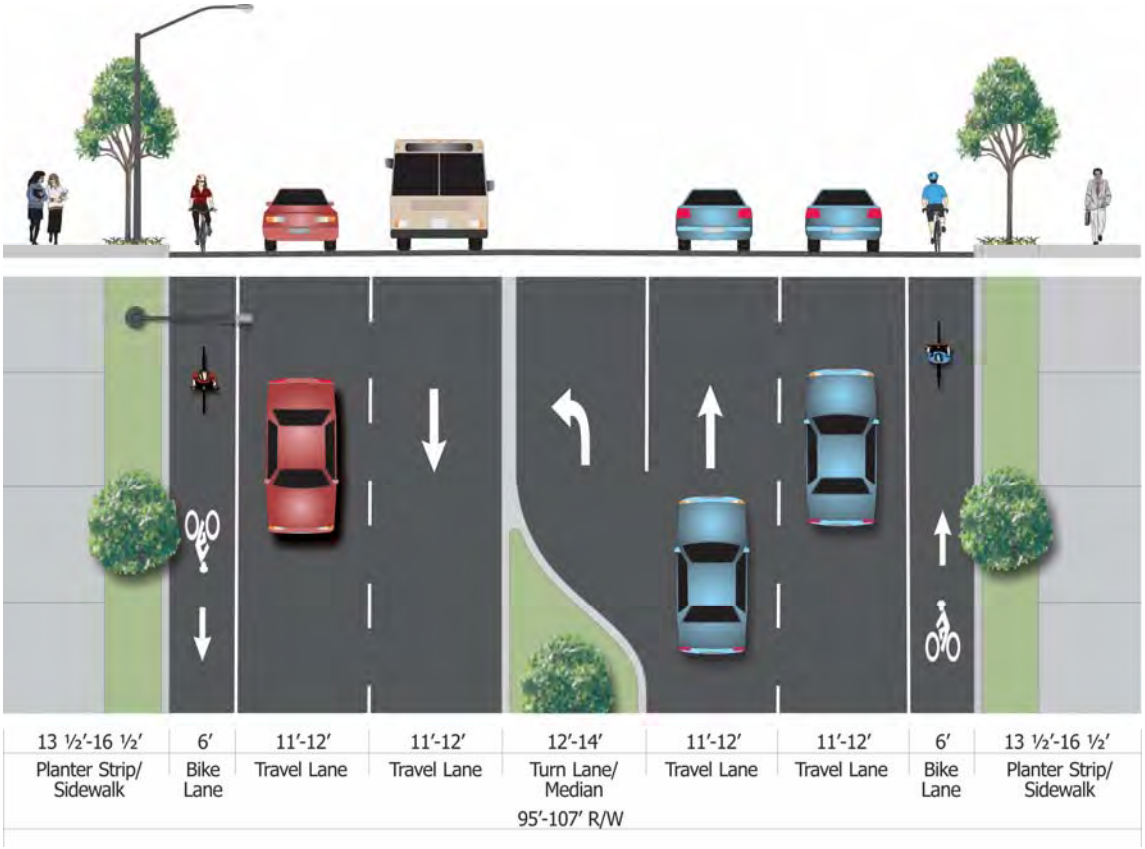
APPENDIX

City of Wilsonville Cross-section Details
City of Wilsonville TSP Planned Projects
Existing PM Peak Hour Traffic Counts
Level of Service Descriptions
Trip Generation Summary
City of Wilsonville Stage II List
HCM Analysis – Existing
HCM Analysis – Existing + Stage II
HCM Analysis – Existing + Project Phase 1
HCM Analysis – Existing + Project Phase 1 + Stage II
HCM Analysis – Existing + Project Phase 2
HCM Analysis – Existing + Project Phase 2 + Stage II

City of Wilsonville Cross-section Details

DKS

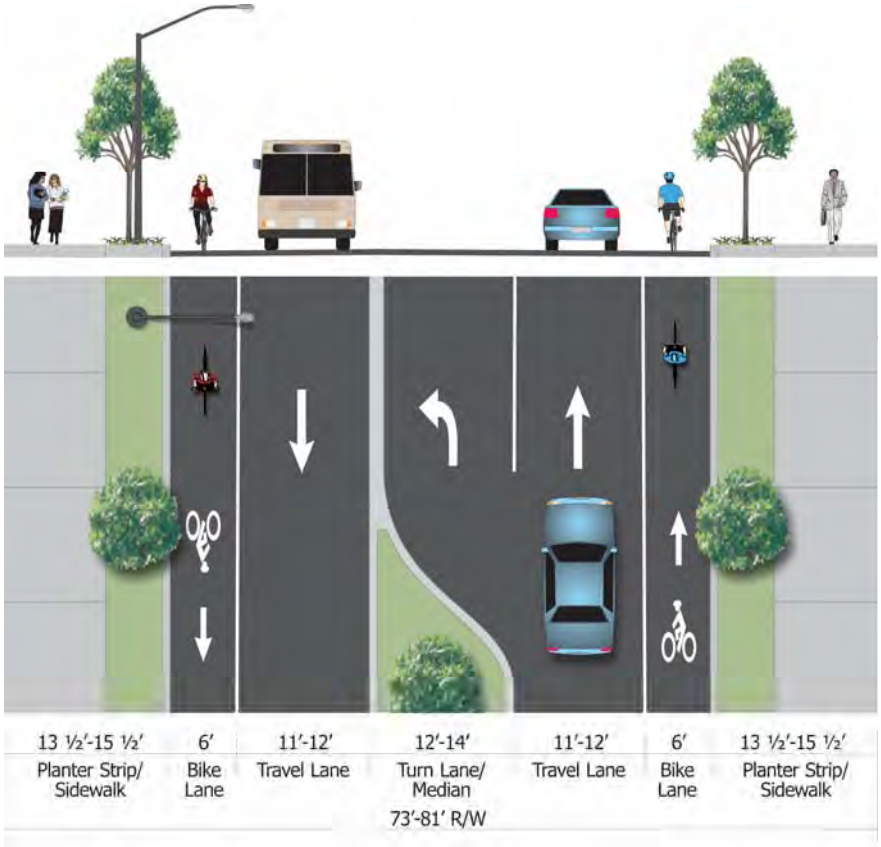
Figure 3-6. Major Arterial Cross-Section



Notes:

1. Travel lane and turn lane/median widths as determined by Community Development Director.
2. Minimum sidewalk width is 5 feet; actual sidewalk width as determined by Community Development Director. Width of sidewalk/planting strip may be combined in commercial/retail areas for a total width of 13½ to 16½ feet; street trees shall be located in minimum 4-foot tree wells.
3. Curb width of ½-foot is included in the sidewalk/planter strip width.
4. Street lights shall be located within the planter strip, center landscape median, or sidewalk as determined by Community Development Director.
5. Striping and signage as required in the PW Standards.
6. On-street parking is not allowed.
7. Transit stop locations to be determined by Transit Director.
8. When not needed as a left-turn lane, median may be provided to serve safety, stormwater, or aesthetic objectives.
9. New streets shall incorporate low impact development design as practicable.
10. Allow for separation for bikes on major arterials (especially freight routes).

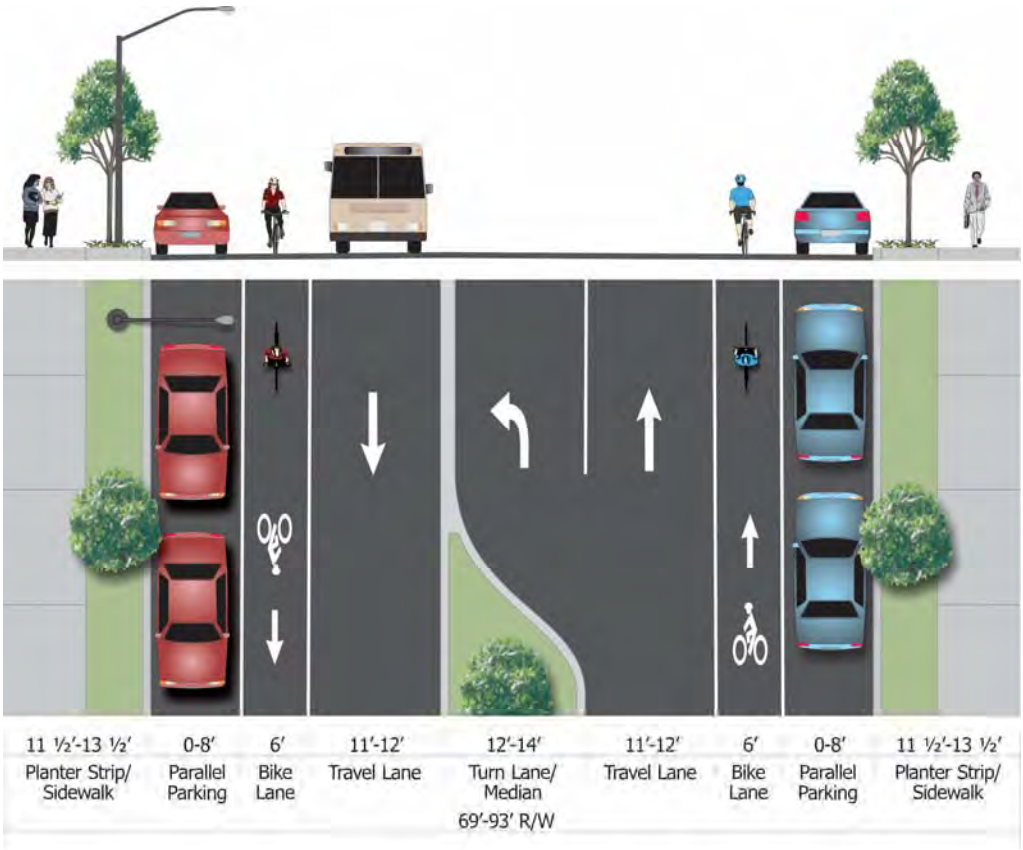
FIGURE 3-7. MINOR ARTERIAL CROSS-SECTION



Notes:

1. Travel lane and turn lane/median widths as determined by Community Development Director.
2. Minimum sidewalk width is 5 feet; actual sidewalk width as determined by Community Development Director. Width of sidewalk/planting strip may be combined in commercial/retail areas for a total width of 13½ to 15½ feet; street trees shall be located in minimum 4-foot tree wells.
3. Curb width of ½ foot is included in the sidewalk/planter strip width.
4. Street lights shall be located within the planter strip, center landscape median, or sidewalk as determined by Community Development Director.
5. Striping and signage as required in the PW Standards.
6. On-street parking is not allowed.
7. Transit stop locations to be determined by Transit Director.
8. When not needed as a left-turn lane, median may be provided to serve safety, stormwater, or aesthetic objectives.
9. New streets shall incorporate low impact development design as practicable.
10. Allow for separation for bikes on minor arterials (especially freight routes).

FIGURE 3-8. COLLECTOR CROSS-SECTION



Notes:

1. Collector right-of-way varies between 59 to 89 feet as determined by Community Development Director based on surrounding planned development of residential, commercial or industrial and need for on-street parking and/or turn lane/median.
2. Minimum sidewalk width is 5 feet; actual sidewalk width as determined by Community Development Director. Width of sidewalk/planting strip may be combined in commercial/retail areas for a total width of 11½ to 13½ feet; street trees shall be located in minimum 4-foot tree wells.
3. Curb and sidewalk bulb-outs at crosswalks or street intersections as determined by Community Development Director.
4. Curb width of ½ foot is included in the sidewalk/planter strip width.
5. Street lights shall be located within the planter strip, center landscape median, or sidewalk as determined by Community Development Director.
6. Travel lane and turn lane/median widths as determined by Community Development Director. Turn lane/median may be eliminated.
7. Striping and signage as required in the PW Standards.
8. On-street parking on one or both sides is allowed.
9. Transit stop locations to be determined by Transit Director.
10. When not needed as a left-turn lane, median may be provided to serve safety, stormwater, or aesthetic objectives.
11. New streets shall incorporate low impact development design as practicable.

City of Wilsonville TSP Planned Projects

Figure 5-2. Higher Priority Projects

This figure provides an overall perspective of the Higher Priority projects throughout the city. Additional details are provided on the pages that follow for each of the City's four quadrants (Northwest, Northeast, Southwest, Southeast), which use I-5 and Boeckman Road as dividing lines.

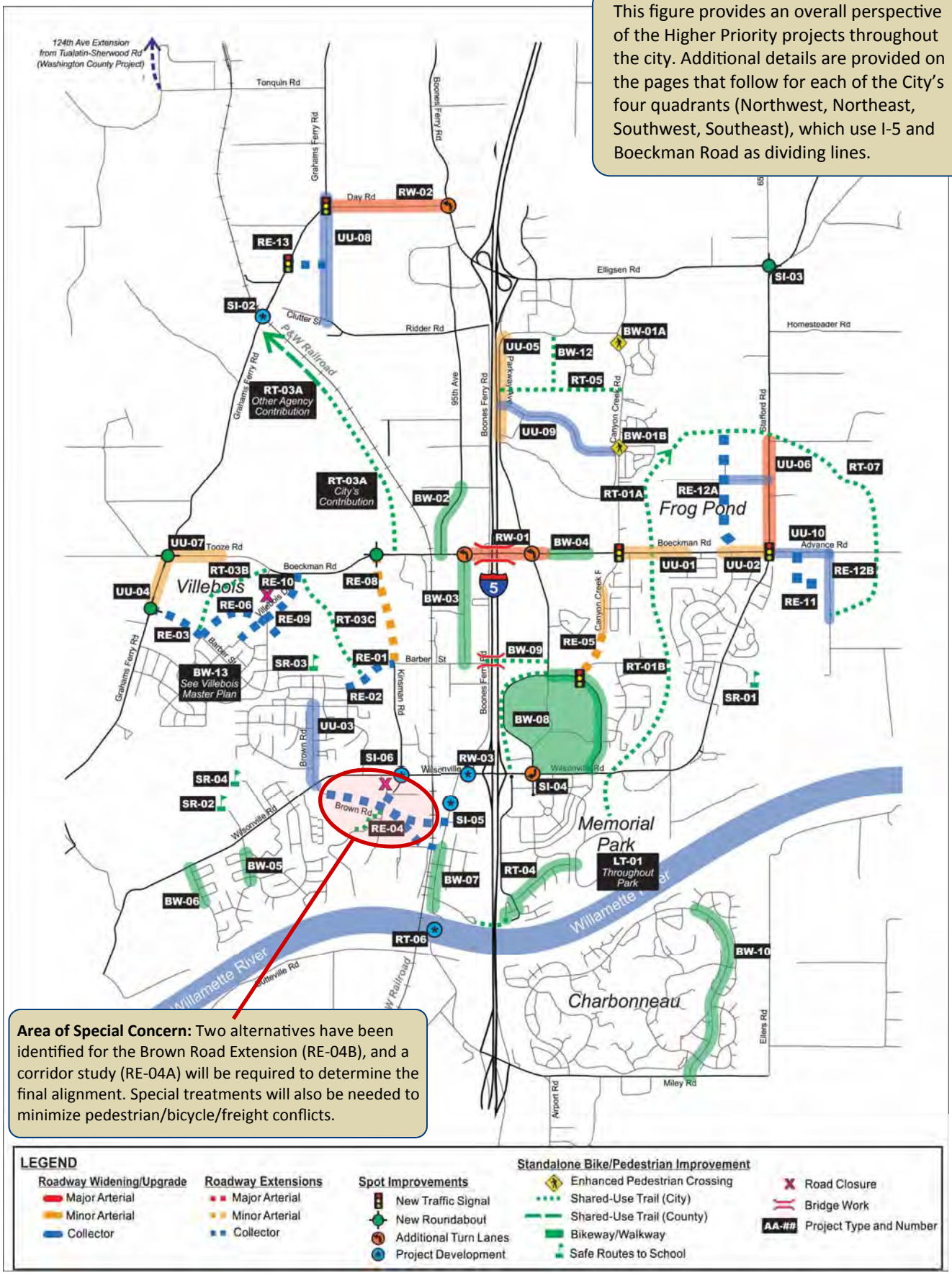
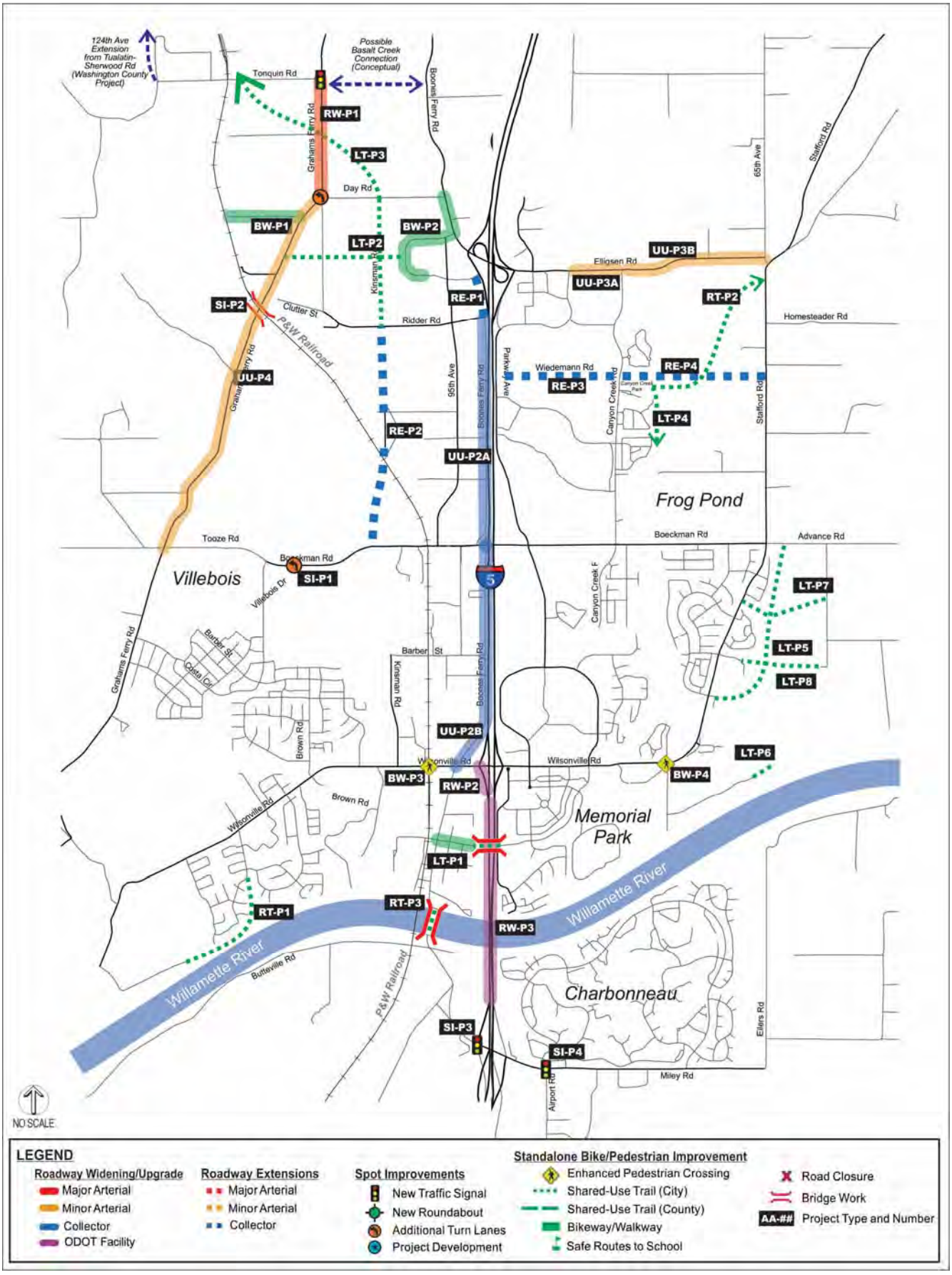


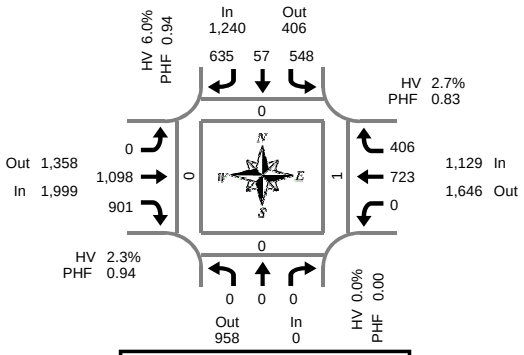
FIGURE 5-7. ADDITIONAL PLANNED PROJECTS



Existing PM Peak Hour Traffic Counts

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:40 PM to 5:40 PM

I-5 SB Ramp & SW Elligsen Rd

Wednesday, June 07, 2017
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Elligsen Rd				Westbound SW Elligsen Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	0	0	0	39	2	49	0	0	87	85	0	0	54	20	0	336	0	0	0	0
4:05 PM	0	0	0	0	50	4	63	0	0	90	79	0	0	56	26	0	368	0	0	0	0
4:10 PM	0	0	0	0	40	3	52	0	0	99	87	0	0	46	25	0	352	0	0	0	0
4:15 PM	0	0	0	0	39	2	58	0	0	75	68	0	0	54	23	0	319	0	0	0	0
4:20 PM	0	0	0	0	39	5	45	0	0	66	74	0	0	52	20	0	301	0	0	0	0
4:25 PM	0	0	0	0	41	6	38	0	0	96	66	0	0	49	30	0	326	0	0	0	0
4:30 PM	0	0	0	0	42	2	60	0	0	106	69	0	0	49	14	1	342	0	0	0	0
4:35 PM	0	0	0	0	45	4	39	0	0	94	78	0	0	57	36	0	353	0	0	0	0
4:40 PM	0	0	0	0	46	1	56	0	0	105	74	0	0	49	36	0	367	0	0	0	0
4:45 PM	0	0	0	0	53	5	58	0	0	90	85	0	0	52	30	1	373	0	0	0	0
4:50 PM	0	0	0	0	46	2	58	0	0	91	66	1	0	48	22	0	333	0	0	0	0
4:55 PM	0	0	0	0	34	3	47	0	0	91	82	0	0	66	29	0	352	0	0	0	0
5:00 PM	0	0	0	0	31	6	33	0	0	112	77	0	0	69	41	0	369	0	0	0	0
5:05 PM	0	0	0	0	54	5	54	0	0	105	64	0	0	61	47	1	390	0	0	0	0
5:10 PM	0	0	0	0	47	4	56	0	0	96	80	0	0	72	52	0	407	0	0	1	0
5:15 PM	0	0	0	0	50	8	48	0	0	82	85	0	0	59	30	0	362	0	0	0	0
5:20 PM	0	0	0	0	44	5	56	0	0	83	75	0	0	64	26	1	353	0	0	0	0
5:25 PM	0	0	0	0	54	7	56	0	0	65	85	0	0	57	28	1	352	0	0	0	0
5:30 PM	0	0	0	0	42	6	54	0	0	79	68	0	0	56	31	1	336	0	0	0	0
5:35 PM	0	0	0	0	47	5	59	0	0	99	60	0	0	70	34	0	374	0	0	0	0
5:40 PM	0	0	0	0	58	9	59	0	0	79	65	0	0	60	35	0	365	0	0	1	0
5:45 PM	0	0	0	0	51	5	68	0	0	69	68	0	0	46	21	0	328	0	0	0	0
5:50 PM	0	0	0	0	54	7	61	0	0	33	73	0	0	44	25	0	297	0	0	0	0
5:55 PM	0	0	0	0	48	5	70	0	0	63	60	0	0	42	18	1	306	0	0	0	0
Total Survey	0	0	0	0	1,094	111	1,297	0	0	2,055	1,773	1	0	1,332	699	7	8,361	0	0	2	0

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Elligsen Rd				Westbound SW Elligsen Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	0	0	0	129	9	164	0	0	276	251	0	0	156	71	0	1,056	0	0	0	0
4:15 PM	0	0	0	0	119	13	141	0	0	237	208	0	0	155	73	0	946	0	0	0	0
4:30 PM	0	0	0	0	133	7	155	0	0	305	221	0	0	155	86	1	1,062	0	0	0	0
4:45 PM	0	0	0	0	133	10	163	0	0	272	233	1	0	166	81	1	1,058	0	0	0	0
5:00 PM	0	0	0	0	132	15	143	0	0	313	221	0	0	202	140	1	1,166	0	0	1	0
5:15 PM	0	0	0	0	148	20	160	0	0	230	245	0	0	180	84	2	1,067	0	0	0	0
5:30 PM	0	0	0	0	147	20	172	0	0	257	193	0	0	186	100	1	1,075	0	0	1	0
5:45 PM	0	0	0	0	153	17	199	0	0	165	201	0	0	132	64	1	931	0	0	0	0
Total Survey	0	0	0	0	1,094	111	1,297	0	0	2,055	1,773	1	0	1,332	699	7	8,361	0	0	2	0

Peak Hour Summary
4:40 PM to 5:40 PM

By Approach	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Elligsen Rd				Westbound SW Elligsen Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	0	958	958	0	1,240	406	1,646	0	1,999	1,358	3,357	1	1,129	1,646	2,775	5	4,368	0	0	1	0
%HV		0.0%				6.0%				2.3%				2.7%			3.5%				
PHF		0.00				0.94				0.94				0.83			0.94				

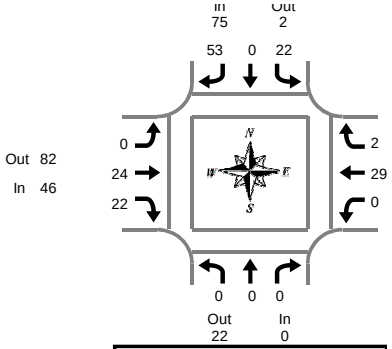
By Movement	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Elligsen Rd				Westbound SW Elligsen Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	0	0	0	548	57	635	1,240	0	1,098	901	1,999	0	723	406	1,129	4,368
%HV	0.0%	0.0%	0.0%	0.0%	4.0%	0.0%	8.3%	6.0%	0.0%	2.2%	2.4%	2.3%	0.0%	4.0%	0.5%	2.7%	3.5%
PHF	0.00	0.00	0.00	0.00	0.91	0.71	0.92	0.94	0.00	0.88	0.92	0.94	0.00	0.89	0.73	0.83	0.94

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Elligsen Rd				Westbound SW Elligsen Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	0	0	0	514	39	623	0	0	1,090	913	1	0	632	311	2	4,122	0	0	0	0
4:15 PM	0	0	0	0	517	45	602	0	0	1,127	883	1	0	678	380	3	4,232	0	0	1	0
4:30 PM	0	0	0	0	546	52	621	0	0	1,120	920	1	0	703	391	5	4,353	0	0	1	0
4:45 PM	0	0	0	0	560	65	638	0	0	1,072	892	1	0	734	405	5	4,366	0	0	2	0
5:00 PM	0	0	0	0	580	72	674	0	0	965	860	0	0	700	388	5	4,239	0	0	2	0

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



I-5 SB Ramp & SW Elligsen Rd

Wednesday, June 07, 2017
4:00 PM to 6:00 PM

Peak Hour Summary
4:40 PM to 5:40 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Elligsen Rd				Westbound SW Elligsen Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	2	0	5	7	0	4	4	8	0	3	0	3	18
4:05 PM	0	0	0	0	3	0	9	12	0	3	6	9	0	4	0	4	25
4:10 PM	0	0	0	0	2	0	5	7	0	3	1	4	0	2	1	3	14
4:15 PM	0	0	0	0	0	0	10	10	0	5	4	9	0	3	1	4	23
4:20 PM	0	0	0	0	2	0	6	8	0	2	2	4	0	4	1	5	17
4:25 PM	0	0	0	0	2	0	1	3	0	5	1	6	0	6	1	7	16
4:30 PM	0	0	0	0	1	0	12	13	0	4	2	6	0	4	0	4	23
4:35 PM	0	0	0	0	0	0	6	6	0	1	3	4	0	5	0	5	15
4:40 PM	0	0	0	0	1	0	10	11	0	3	3	6	0	4	0	4	21
4:45 PM	0	0	0	0	4	0	8	12	0	2	4	6	0	1	0	1	19
4:50 PM	0	0	0	0	3	0	5	8	0	1	2	3	0	2	0	2	13
4:55 PM	0	0	0	0	1	0	4	5	0	3	3	6	0	1	0	1	12
5:00 PM	0	0	0	0	2	0	1	3	0	2	1	3	0	7	1	8	14
5:05 PM	0	0	0	0	0	0	3	3	0	4	0	4	0	2	1	3	10
5:10 PM	0	0	0	0	1	0	6	7	0	2	1	3	0	0	0	0	10
5:15 PM	0	0	0	0	2	0	4	6	0	4	2	6	0	4	0	4	16
5:20 PM	0	0	0	0	3	0	1	4	0	0	4	4	0	1	0	1	9
5:25 PM	0	0	0	0	4	0	3	7	0	1	0	1	0	2	0	2	10
5:30 PM	0	0	0	0	1	0	6	7	0	0	1	1	0	4	0	4	12
5:35 PM	0	0	0	0	0	0	2	2	0	2	1	3	0	1	0	1	6
5:40 PM	0	0	0	0	3	0	4	7	0	2	0	2	0	2	0	2	11
5:45 PM	0	0	0	0	2	0	2	4	0	3	2	5	0	0	1	1	10
5:50 PM	0	0	0	0	0	0	3	3	0	2	1	3	0	3	0	3	9
5:55 PM	0	0	0	0	2	0	3	5	0	4	2	6	0	1	0	1	12
Total Survey	0	0	0	0	41	0	119	160	0	62	50	112	0	66	7	73	345

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Elligsen Rd				Westbound SW Elligsen Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	7	0	19	26	0	10	11	21	0	9	1	10	57
4:15 PM	0	0	0	0	4	0	17	21	0	12	7	19	0	13	3	16	56
4:30 PM	0	0	0	0	2	0	28	30	0	8	8	16	0	13	0	13	59
4:45 PM	0	0	0	0	8	0	17	25	0	6	9	15	0	4	0	4	44
5:00 PM	0	0	0	0	3	0	10	13	0	8	2	10	0	9	2	11	34
5:15 PM	0	0	0	0	9	0	8	17	0	5	6	11	0	7	0	7	35
5:30 PM	0	0	0	0	4	0	12	16	0	4	2	6	0	7	0	7	29
5:45 PM	0	0	0	0	4	0	8	12	0	9	5	14	0	4	1	5	31
Total Survey	0	0	0	0	41	0	119	160	0	62	50	112	0	66	7	73	345

Heavy Vehicle Peak Hour Summary
4:40 PM to 5:40 PM

By Approach	Northbound I-5 SB Ramp			Southbound I-5 SB Ramp			Eastbound SW Elligsen Rd			Westbound SW Elligsen Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	0	22	22	75	2	77	46	82	128	31	46	77	152
PHF	0.00			0.60			0.77			0.65			0.72

By Movement	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Elligsen Rd				Westbound SW Elligsen Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	0	0	0	22	0	53	75	0	24	22	46	0	29	2	31	152
PHF	0.00	0.00	0.00	0.00	0.61	0.00	0.58	0.60	0.00	0.60	0.61	0.77	0.00	0.73	0.25	0.65	0.72

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Elligsen Rd				Westbound SW Elligsen Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	21	0	81	102	0	36	35	71	0	39	4	43	216
4:15 PM	0	0	0	0	17	0	72	89	0	34	26	60	0	39	5	44	193
4:30 PM	0	0	0	0	22	0	63	85	0	27	25	52	0	33	2	35	172
4:45 PM	0	0	0	0	24	0	47	71	0	23	19	42	0	27	2	29	142
5:00 PM	0	0	0	0	20	0	38	58	0	26	15	41	0	27	3	30	129

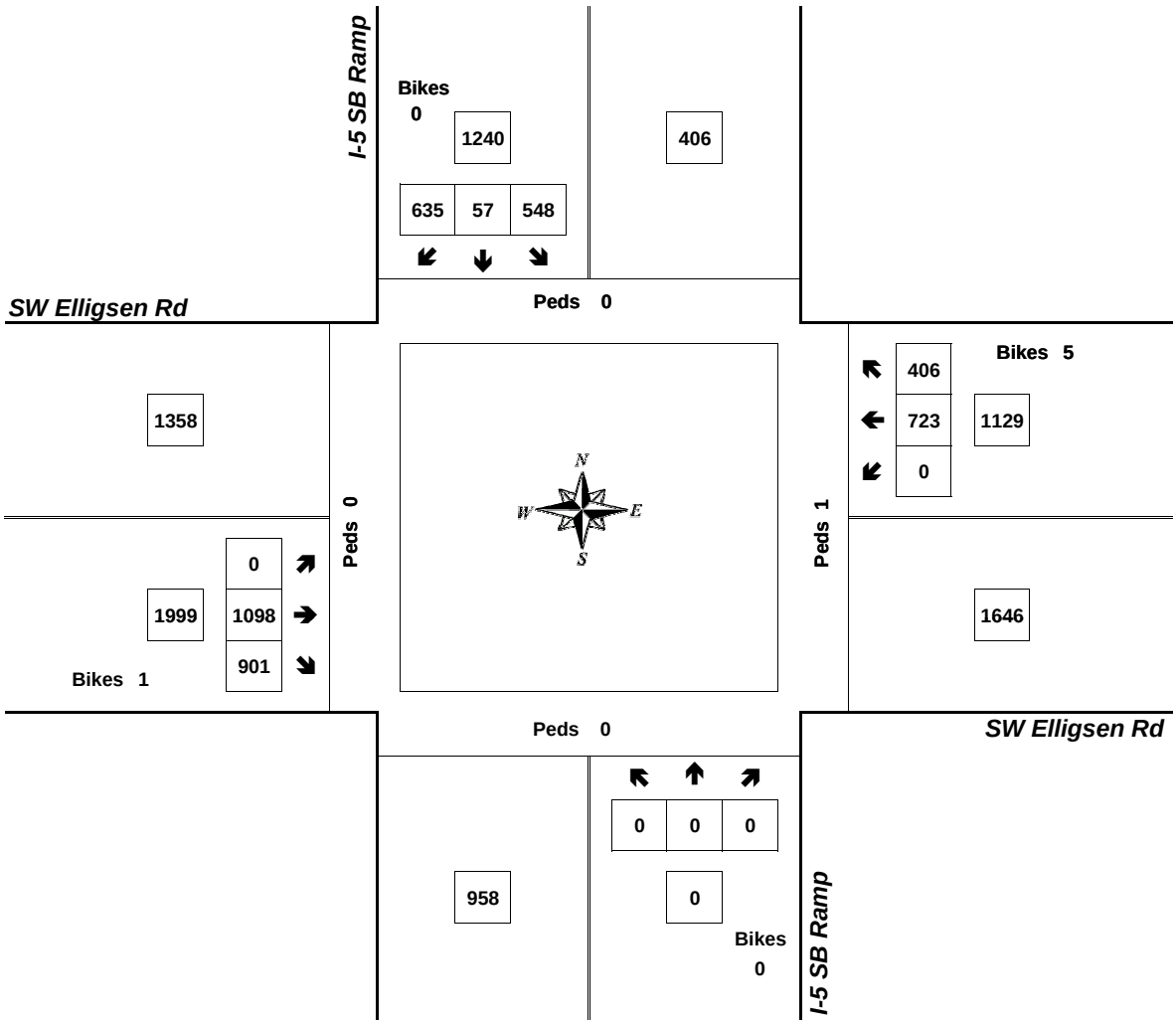
Peak Hour Summary

All Traffic Data Services Inc.

Clay Carney
(503) 833-2740

I-5 SB Ramp & SW Elligsen Rd

4:40 PM to 5:40 PM
Wednesday, June 07, 2017

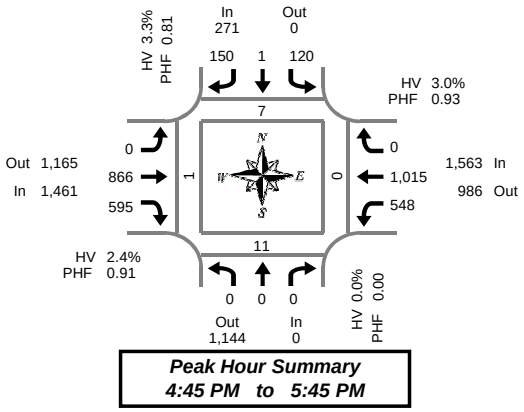


Approach	PHF	HV%	Volume
EB	0.94	2.3%	1,999
WB	0.83	2.7%	1,129
NB	0.00	0.0%	0
SB	0.94	6.0%	1,240
Intersection	0.94	3.5%	4,368

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



I-5 SB Ramp & SW Wilsonville Rd

Wednesday, June 07, 2017
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	0	0	0	9	0	11	0	0	64	60	0	37	62	0	0	243	0	0	0	0
4:05 PM	0	0	0	0	4	0	13	0	0	96	47	0	31	77	0	0	268	0	1	0	0
4:10 PM	0	0	0	0	6	0	9	0	0	74	41	0	49	80	0	0	259	0	1	0	0
4:15 PM	0	0	0	0	15	0	8	0	0	54	46	0	51	74	0	1	248	3	0	0	0
4:20 PM	0	0	0	0	12	0	10	0	0	65	49	0	41	75	0	0	252	3	2	0	0
4:25 PM	0	0	0	0	9	0	8	0	0	95	44	0	40	70	0	0	266	3	1	0	0
4:30 PM	0	0	0	0	4	0	9	0	0	66	45	0	51	87	0	1	262	0	0	0	0
4:35 PM	0	0	0	0	7	0	12	0	0	58	37	0	47	70	0	1	231	0	0	0	0
4:40 PM	0	0	0	0	11	0	11	0	0	64	48	0	34	93	0	0	261	2	1	0	0
4:45 PM	0	0	0	0	15	0	13	0	0	72	41	0	53	97	0	0	291	0	1	0	0
4:50 PM	0	0	0	0	9	0	17	1	0	62	46	0	52	83	0	0	269	0	0	0	0
4:55 PM	0	0	0	0	9	0	8	0	0	55	56	0	56	80	0	0	264	1	0	0	0
5:00 PM	0	0	0	0	5	0	15	0	0	73	63	0	26	71	0	0	253	1	0	0	0
5:05 PM	0	0	0	0	4	0	11	0	0	77	52	0	55	100	0	0	299	0	1	0	0
5:10 PM	0	0	0	0	16	0	6	0	0	89	46	0	50	75	0	0	282	2	0	0	0
5:15 PM	0	0	0	0	12	1	12	0	0	62	45	0	45	76	0	0	253	0	3	0	0
5:20 PM	0	0	0	0	12	0	8	0	0	83	49	0	42	95	0	0	289	1	0	0	0
5:25 PM	0	0	0	0	3	0	11	0	0	95	46	0	51	90	0	0	296	0	1	0	1
5:30 PM	0	0	0	0	7	0	12	0	0	49	50	0	48	76	0	1	242	1	1	0	0
5:35 PM	0	0	0	0	17	0	19	0	0	74	57	0	36	66	0	2	269	0	0	0	0
5:40 PM	0	0	0	0	11	0	18	0	0	75	44	0	34	106	0	0	288	1	4	0	0
5:45 PM	0	0	0	0	11	0	7	0	0	79	43	0	45	87	0	1	272	2	0	0	2
5:50 PM	0	0	0	0	5	0	10	0	0	60	54	2	51	75	0	0	255	0	0	0	0
5:55 PM	0	0	0	0	10	0	11	0	0	66	42	0	45	86	0	0	260	0	0	0	0
Total Survey	0	0	0	0	223	1	269	1	0	1,707	1,151	2	1,070	1,951	0	7	6,372	20	17	0	3

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	0	0	0	19	0	33	0	0	234	148	0	117	219	0	0	770	0	2	0	0
4:15 PM	0	0	0	0	36	0	26	0	0	214	139	0	132	219	0	1	766	9	3	0	0
4:30 PM	0	0	0	0	22	0	32	0	0	188	130	0	132	250	0	2	754	2	1	0	0
4:45 PM	0	0	0	0	33	0	38	1	0	189	143	0	161	260	0	0	824	1	1	0	0
5:00 PM	0	0	0	0	25	0	32	0	0	239	161	0	131	246	0	0	834	3	1	0	0
5:15 PM	0	0	0	0	27	1	31	0	0	240	140	0	138	261	0	0	838	1	4	0	1
5:30 PM	0	0	0	0	35	0	49	0	0	198	151	0	118	248	0	3	799	2	5	0	0
5:45 PM	0	0	0	0	26	0	28	0	0	205	139	2	141	248	0	1	787	2	0	0	2
Total Survey	0	0	0	0	223	1	269	1	0	1,707	1,151	2	1,070	1,951	0	7	6,372	20	17	0	3

Peak Hour Summary
4:45 PM to 5:45 PM

By Approach	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	
Volume	0	1,144	1,144	0	271	0	271	1	1,461	1,165	2,626	0	1,563	986	2,549	3	3,295
%HV	0.0%				3.3%				2.4%				3.0%				2.8%
PHF	0.00				0.81				0.91				0.93				0.98

Pedestrians Crosswalk			
North	South	East	West
7	11	0	1

By Movement	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	0	0	0	120	1	150	271	0	866	595	1,461	548	1,015	0	1,563	3,295
%HV	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.0%	3.3%	0.0%	1.5%	3.7%	2.4%	0.5%	4.3%	0.0%	3.0%	2.8%
PHF	0.00	0.00	0.00	0.00	0.75	0.25	0.77	0.81	0.00	0.90	0.87	0.91	0.85	0.97	0.00	0.93	0.98

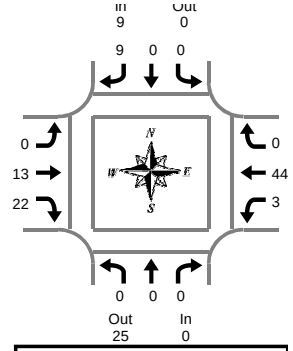
Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	0	0	0	110	0	129	1	0	825	560	0	542	948	0	3	3,114	12	7	0	0
4:15 PM	0	0	0	0	116	0	128	1	0	830	573	0	556	975	0	3	3,178	15	6	0	0
4:30 PM	0	0	0	0	107	1	133	1	0	856	574	0	562	1,017	0	2	3,250	7	7	0	1
4:45 PM	0	0	0	0	120	1	150	1	0	866	595	0	548	1,015	0	3	3,295	7	11	0	1
5:00 PM	0	0	0	0	113	1	140	0	0	882	591	2	528	1,003	0	4	3,258	8	10	0	3

Heavy Vehicle Summary

Clay Carney
(503) 833-2740

Out 53
In 35



Peak Hour Summary
4:45 PM to 5:45 PM

I-5 SB Ramp & SW Wilsonville Rd

Wednesday, June 07, 2017
4:00 PM to 6:00 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	5	0	5	0	2	0	2	7
4:05 PM	0	0	0	0	0	0	3	3	0	6	2	8	0	4	0	4	15
4:10 PM	0	0	0	0	0	0	0	0	0	3	3	6	0	2	0	2	8
4:15 PM	0	0	0	0	0	0	1	1	0	5	0	5	4	7	0	11	17
4:20 PM	0	0	0	0	0	0	1	1	0	3	2	5	0	5	0	5	11
4:25 PM	0	0	0	0	0	0	1	1	0	2	0	2	1	5	0	6	9
4:30 PM	0	0	0	0	1	0	1	2	0	1	1	2	1	4	0	5	9
4:35 PM	0	0	0	0	0	0	1	1	0	1	0	1	0	3	0	3	5
4:40 PM	0	0	0	0	1	0	0	1	0	2	3	5	1	6	0	7	13
4:45 PM	0	0	0	0	0	0	0	0	0	3	5	8	0	3	0	3	11
4:50 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	5	0	5	6
4:55 PM	0	0	0	0	0	0	1	1	0	1	1	2	0	2	0	2	5
5:00 PM	0	0	0	0	0	0	0	0	0	0	3	3	0	12	0	12	15
5:05 PM	0	0	0	0	0	0	1	1	0	1	1	2	0	4	0	4	7
5:10 PM	0	0	0	0	0	0	2	2	0	2	1	3	0	0	0	0	5
5:15 PM	0	0	0	0	0	0	1	1	0	1	2	3	1	3	0	4	8
5:20 PM	0	0	0	0	0	0	0	0	0	3	1	4	0	7	0	7	11
5:25 PM	0	0	0	0	0	0	1	1	0	0	1	1	0	3	0	3	5
5:30 PM	0	0	0	0	0	0	0	0	0	0	2	2	0	2	0	2	4
5:35 PM	0	0	0	0	0	0	1	1	0	1	1	2	0	0	0	0	3
5:40 PM	0	0	0	0	0	0	2	2	0	1	3	4	2	3	0	5	11
5:45 PM	0	0	0	0	1	0	0	1	0	4	2	6	2	5	0	7	14
5:50 PM	0	0	0	0	0	0	1	1	0	1	0	1	1	1	0	2	4
5:55 PM	0	0	0	0	2	0	1	3	0	0	1	1	0	2	0	2	6
Total Survey	0	0	0	0	5	0	19	24	0	46	36	82	13	90	0	103	209

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	3	3	0	14	5	19	0	8	0	8	30
4:15 PM	0	0	0	0	0	0	3	3	0	10	2	12	5	17	0	22	37
4:30 PM	0	0	0	0	2	0	2	4	0	4	4	8	2	13	0	15	27
4:45 PM	0	0	0	0	0	0	1	1	0	4	7	11	0	10	0	10	22
5:00 PM	0	0	0	0	0	0	3	3	0	3	5	8	0	16	0	16	27
5:15 PM	0	0	0	0	0	0	2	2	0	4	4	8	1	13	0	14	24
5:30 PM	0	0	0	0	0	0	3	3	0	2	6	8	2	5	0	7	18
5:45 PM	0	0	0	0	3	0	2	5	0	5	3	8	3	8	0	11	24
Total Survey	0	0	0	0	5	0	19	24	0	46	36	82	13	90	0	103	209

Heavy Vehicle Peak Hour Summary
4:45 PM to 5:45 PM

By Approach	Northbound I-5 SB Ramp			Southbound I-5 SB Ramp			Eastbound SW Wilsonville Rd			Westbound SW Wilsonville Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	0	25	25	9	0	9	35	53	88	47	13	60	91
PHF	0.00			0.56			0.80			0.62			0.84

By Movement	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	0	0	0	0	0	9	9	0	13	22	35	3	44	0	47	91
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.56	0.56	0.00	0.54	0.79	0.80	0.38	0.58	0.00	0.62	0.84

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	2	0	9	11	0	32	18	50	7	48	0	55	116
4:15 PM	0	0	0	0	2	0	9	11	0	21	18	39	7	56	0	63	113
4:30 PM	0	0	0	0	2	0	8	10	0	15	20	35	3	52	0	55	100
4:45 PM	0	0	0	0	0	0	9	9	0	13	22	35	3	44	0	47	91
5:00 PM	0	0	0	0	3	0	10	13	0	14	18	32	6	42	0	48	93

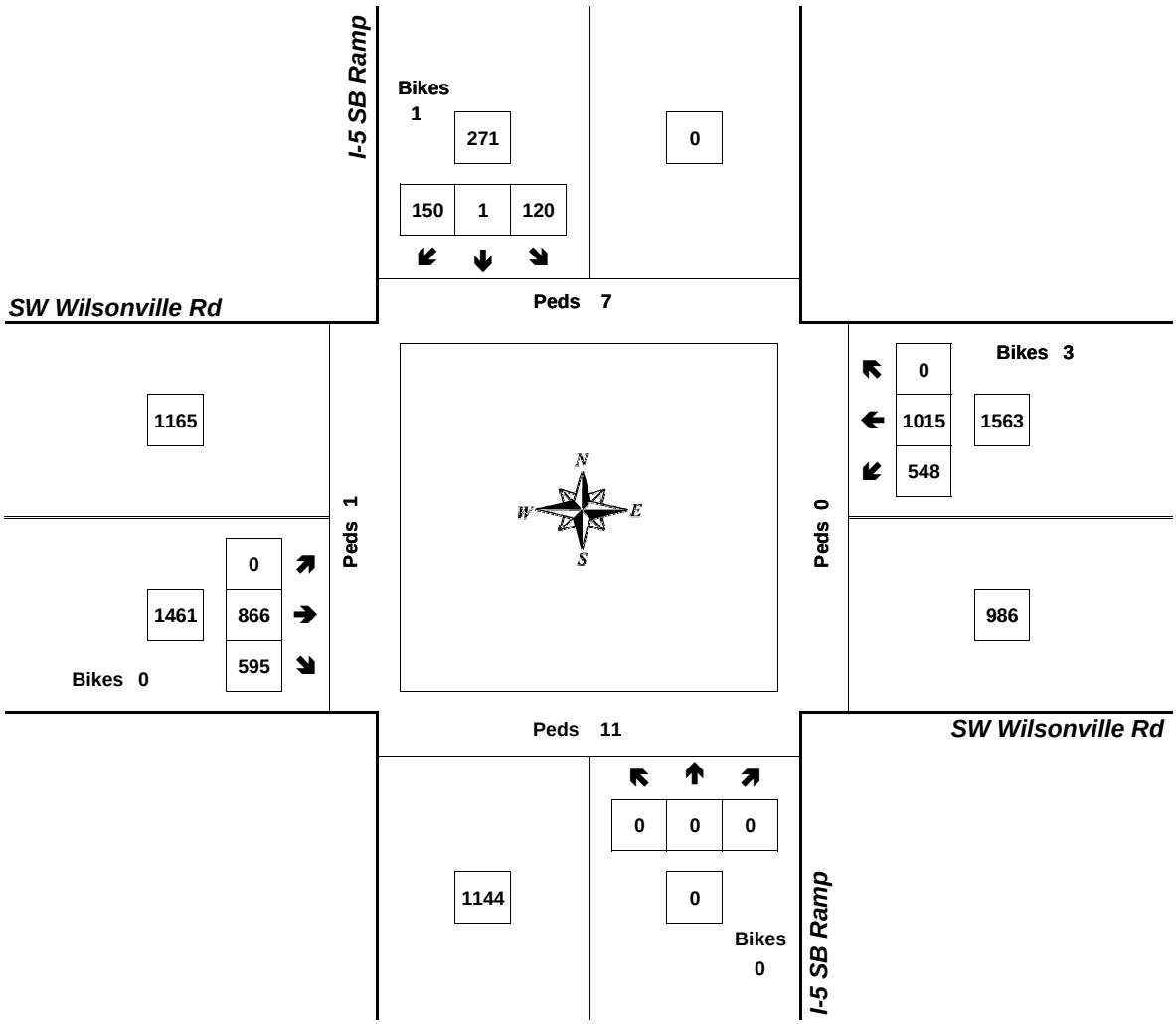
Peak Hour Summary

All Traffic Data Services Inc.

Clay Carney
(503) 833-2740

I-5 SB Ramp & SW Wilsonville Rd

4:45 PM to 5:45 PM
Wednesday, June 07, 2017

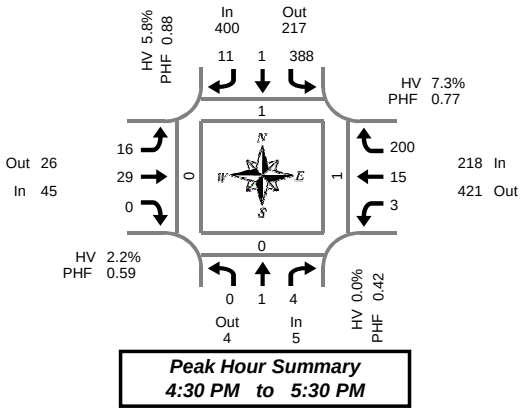


Approach	PHF	HV%	Volume
EB	0.91	2.4%	1,461
WB	0.93	3.0%	1,563
NB	0.00	0.0%	0
SB	0.81	3.3%	271
Intersection	0.98	2.8%	3,295

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:30 PM to 5:30 PM

SW 95th Ave & SW Boeckman Rd

Wednesday, June 07, 2017
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 95th Ave				Southbound SW 95th Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	1	1	0	24	1	2	0	2	2	0	0	0	1	14	0	48	0	0	0	0
4:05 PM	0	1	2	0	39	0	1	0	6	3	0	0	0	0	15	1	67	0	0	0	0
4:10 PM	0	0	1	0	33	0	3	0	2	2	0	0	0	1	19	0	61	0	0	0	0
4:15 PM	0	2	0	0	40	0	1	0	1	4	0	0	0	0	16	0	64	0	0	0	0
4:20 PM	0	0	0	0	24	0	1	0	1	1	0	0	0	0	11	0	38	0	0	0	0
4:25 PM	0	0	0	0	31	1	1	0	1	3	0	0	0	0	14	0	51	0	0	0	0
4:30 PM	0	0	2	0	36	0	0	0	1	4	0	0	1	2	17	0	63	0	0	0	0
4:35 PM	0	1	0	0	35	0	3	5	2	3	0	0	0	1	18	0	63	0	0	0	0
4:40 PM	0	0	0	0	27	0	1	1	1	1	0	1	1	1	13	0	45	1	0	1	0
4:45 PM	0	0	0	0	36	0	0	0	1	0	0	0	0	1	15	1	53	0	0	0	0
4:50 PM	0	0	2	0	23	0	1	1	1	2	0	0	1	1	17	0	48	0	0	0	0
4:55 PM	0	0	0	0	33	1	0	0	2	3	0	0	0	0	8	0	47	0	0	0	0
5:00 PM	0	0	0	0	35	0	0	0	0	1	0	0	0	2	15	0	53	0	0	0	0
5:05 PM	0	0	0	0	35	0	0	0	2	1	0	0	0	2	17	1	57	0	0	0	0
5:10 PM	0	0	0	0	37	0	1	0	1	6	0	0	0	1	13	0	59	0	0	0	0
5:15 PM	0	0	0	0	40	0	1	0	3	2	0	0	0	1	25	0	72	0	0	0	0
5:20 PM	0	0	0	0	27	0	2	0	2	5	0	0	0	3	14	0	53	0	0	0	0
5:25 PM	0	0	0	0	24	0	2	0	0	1	0	0	0	0	28	0	55	0	0	0	0
5:30 PM	0	1	0	0	30	0	1	0	0	1	0	0	0	1	16	0	50	0	0	0	0
5:35 PM	0	0	1	0	33	0	0	0	0	1	0	0	0	2	11	0	48	0	0	0	0
5:40 PM	0	1	0	0	35	0	3	0	0	2	0	0	0	2	18	1	61	0	0	0	0
5:45 PM	0	0	1	0	29	0	1	0	0	2	0	0	0	0	11	1	44	0	0	0	0
5:50 PM	0	0	0	0	30	0	0	0	0	0	0	0	0	0	15	0	45	0	0	0	0
5:55 PM	0	0	0	0	29	0	2	0	0	1	0	0	0	2	16	0	50	0	0	0	0
Total Survey	0	7	10	0	765	3	27	7	29	51	0	1	3	24	376	5	1,295	1	0	1	0

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 95th Ave				Southbound SW 95th Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	2	4	0	96	1	6	0	10	7	0	0	0	2	48	1	176	0	0	0	0
4:15 PM	0	2	0	0	95	1	3	0	3	8	0	0	0	0	41	0	153	0	0	0	0
4:30 PM	0	1	2	0	98	0	4	6	4	8	0	1	2	4	48	0	171	1	0	1	0
4:45 PM	0	0	2	0	92	1	1	1	4	5	0	0	1	2	40	1	148	0	0	0	0
5:00 PM	0	0	0	0	107	0	1	0	3	8	0	0	0	5	45	1	169	0	0	0	0
5:15 PM	0	0	0	0	91	0	5	0	5	8	0	0	0	4	67	0	180	0	0	0	0
5:30 PM	0	2	1	0	98	0	4	0	0	4	0	0	0	5	45	1	159	0	0	0	0
5:45 PM	0	0	1	0	88	0	3	0	0	3	0	0	0	2	42	1	139	0	0	0	0
Total Survey	0	7	10	0	765	3	27	7	29	51	0	1	3	24	376	5	1,295	1	0	1	0

Peak Hour Summary
4:30 PM to 5:30 PM

By Approach	Northbound SW 95th Ave				Southbound SW 95th Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	5	4	9	0	400	217	617	7	45	26	71	1	218	421	639	2	668	1	0	1	0
%HV	0.0%				5.8%				2.2%				7.3%				6.0%				
PHF	0.42				0.88				0.59				0.77				0.89				

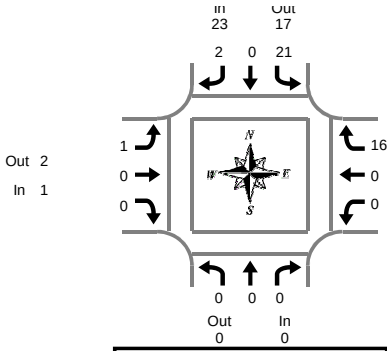
By Movement	Northbound SW 95th Ave				Southbound SW 95th Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	1	4	5	388	1	11	400	16	29	0	45	3	15	200	218	668
%HV	0.0%	0.0%	0.0%	0.0%	5.4%	0.0%	18.2%	5.8%	6.3%	0.0%	0.0%	2.2%	0.0%	0.0%	8.0%	7.3%	6.0%
PHF	0.00	0.25	0.50	0.42	0.87	0.25	0.55	0.88	0.67	0.56	0.00	0.59	0.38	0.75	0.75	0.77	0.89

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 95th Ave				Southbound SW 95th Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	5	8	0	381	3	14	7	21	28	0	1	3	8	177	2	648	1	0	1	0
4:15 PM	0	3	4	0	392	2	9	7	14	29	0	1	3	11	174	2	641	1	0	1	0
4:30 PM	0	1	4	0	388	1	11	7	16	29	0	1	3	15	200	2	668	1	0	1	0
4:45 PM	0	2	3	0	388	1	11	1	12	25	0	0	1	16	197	3	656	0	0	0	0
5:00 PM	0	2	2	0	384	0	13	0	8	23	0	0	0	16	199	3	647	0	0	0	0

Heavy Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



SW 95th Ave & SW Boeckman Rd

Wednesday, June 07, 2017
4:00 PM to 6:00 PM

Peak Hour Summary
4:30 PM to 5:30 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 95th Ave				Southbound SW 95th Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:05 PM	0	0	0	0	3	0	0	3	1	0	0	1	0	0	2	2	6
4:10 PM	0	0	0	0	3	0	1	4	0	0	0	0	0	0	2	2	6
4:15 PM	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	3	6
4:20 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	2
4:25 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
4:30 PM	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	3	5
4:35 PM	0	0	0	0	4	0	1	5	0	0	0	0	0	0	3	3	8
4:40 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	2
4:45 PM	0	0	0	0	5	0	0	5	0	0	0	0	0	0	0	0	5
4:50 PM	0	0	0	0	2	0	0	2	1	0	0	1	0	0	3	3	6
4:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
5:05 PM	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	2	4
5:10 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	2	3
5:20 PM	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	3
5:25 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:35 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	2
5:40 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:50 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total Survey	0	0	0	0	34	0	3	37	3	0	0	3	0	0	26	26	66

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 95th Ave				Southbound SW 95th Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	6	0	1	7	1	0	0	1	0	0	4	4	12
4:15 PM	0	0	0	0	4	0	0	4	1	0	0	1	0	0	4	4	9
4:30 PM	0	0	0	0	6	0	2	8	0	0	0	0	0	0	7	7	15
4:45 PM	0	0	0	0	7	0	0	7	1	0	0	1	0	0	3	3	11
5:00 PM	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4	4	7
5:15 PM	0	0	0	0	5	0	0	5	0	0	0	0	0	0	2	2	7
5:30 PM	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	1	3
5:45 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	2
Total Survey	0	0	0	0	34	0	3	37	3	0	0	3	0	0	26	26	66

Heavy Vehicle Peak Hour Summary
4:30 PM to 5:30 PM

By Approach	Northbound SW 95th Ave			Southbound SW 95th Ave			Eastbound SW Boeckman Rd			Westbound SW Boeckman Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	0	0	0	23	17	40	1	2	3	16	21	37	40
PHF	0.00			0.52			0.25			0.57			0.67

By Movement	Northbound SW 95th Ave				Southbound SW 95th Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	0	0	0	21	0	2	23	1	0	0	1	0	0	16	16	40
PHF	0.00	0.00	0.00	0.00	0.58	0.00	0.25	0.52	0.25	0.00	0.00	0.25	0.00	0.00	0.57	0.57	0.67

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 95th Ave				Southbound SW 95th Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	23	0	3	26	3	0	0	3	0	0	18	18	47
4:15 PM	0	0	0	0	20	0	2	22	2	0	0	2	0	0	18	18	42
4:30 PM	0	0	0	0	21	0	2	23	1	0	0	1	0	0	16	16	40
4:45 PM	0	0	0	0	17	0	0	17	1	0	0	1	0	0	10	10	28
5:00 PM	0	0	0	0	11	0	0	11	0	0	0	0	0	0	8	8	19

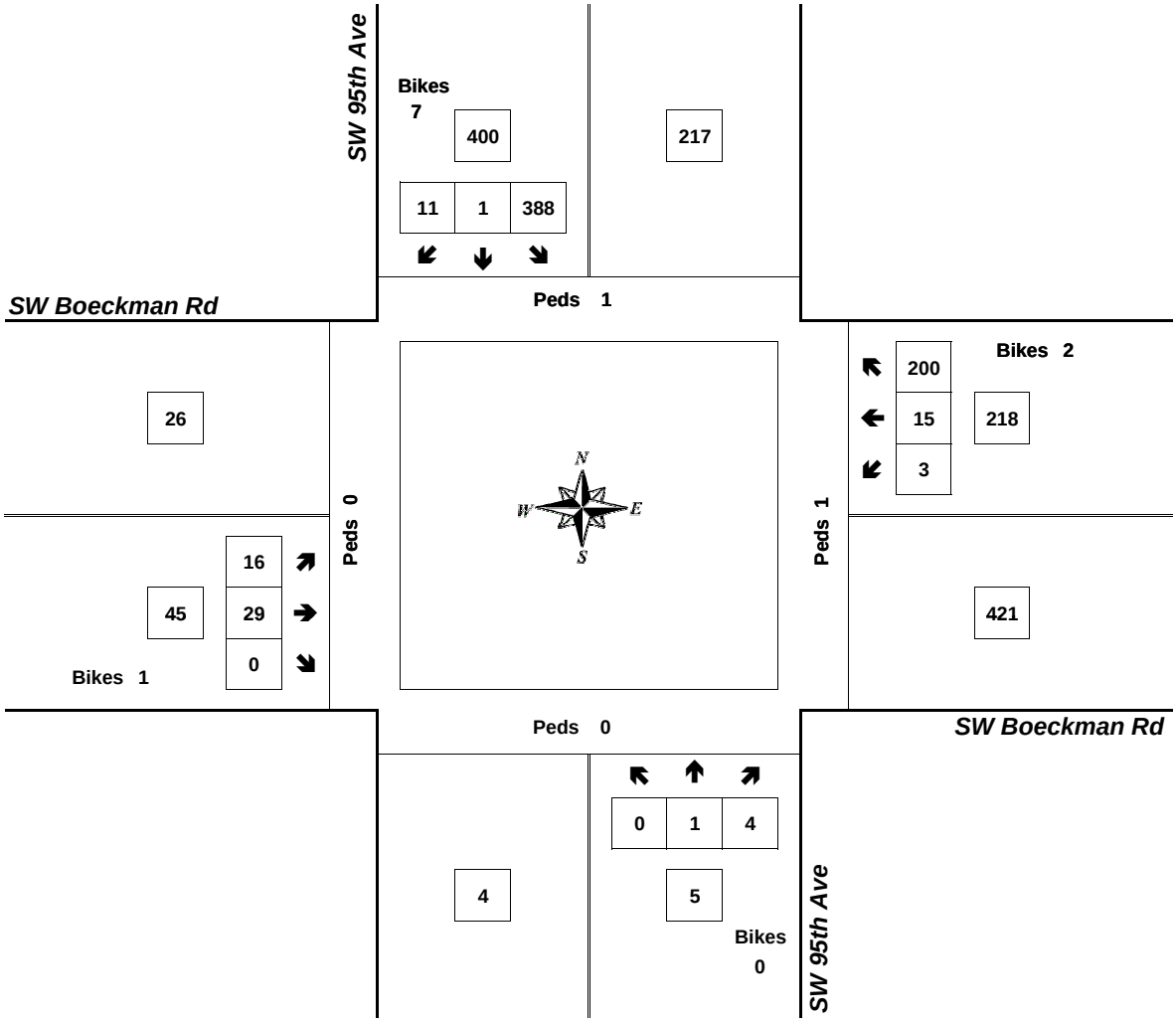
Peak Hour Summary

All Traffic Data Services Inc.

Clay Carney
(503) 833-2740

SW 95th Ave & SW Boeckman Rd

4:30 PM to 5:30 PM
Wednesday, June 07, 2017

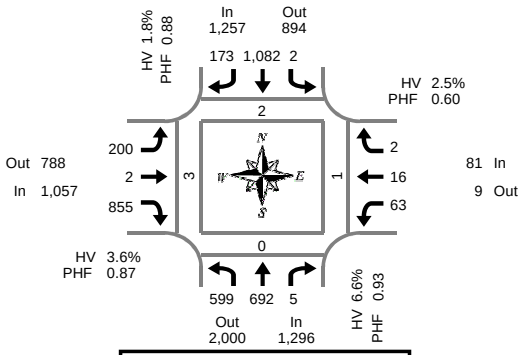


Approach	PHF	HV%	Volume
EB	0.59	2.2%	45
WB	0.77	7.3%	218
NB	0.42	0.0%	5
SB	0.88	5.8%	400
Intersection	0.89	6.0%	668

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:40 PM to 5:40 PM

SW Boones Ferry Rd & SW 95th Ave

Wednesday, June 07, 2017
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW 95th Ave				Westbound SW 95th Ave				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	41	46	1	0	0	80	14	0	17	0	77	0	6	3	0	0	285	0	0	0	1
4:05 PM	51	60	0	0	1	72	17	0	18	0	99	0	4	0	0	0	322	0	0	0	0
4:10 PM	52	51	0	0	1	75	9	0	14	0	95	0	2	3	0	0	302	0	0	0	0
4:15 PM	51	57	2	0	0	79	5	1	14	0	66	0	1	1	0	0	276	1	0	0	0
4:20 PM	45	48	1	0	0	86	8	0	16	0	55	0	0	1	0	0	260	0	0	0	0
4:25 PM	43	44	0	0	1	110	16	0	9	0	59	0	4	0	0	0	286	0	0	0	0
4:30 PM	49	46	3	0	0	85	4	0	11	0	93	0	4	1	0	0	296	1	0	1	1
4:35 PM	35	53	0	0	0	77	17	1	15	0	83	0	6	3	0	0	289	0	0	0	0
4:40 PM	47	56	1	0	0	93	10	0	10	0	83	0	4	3	0	0	307	0	0	0	1
4:45 PM	51	57	1	0	0	72	14	0	25	0	74	0	5	1	2	0	302	1	0	1	0
4:50 PM	42	62	0	0	0	95	17	0	16	0	67	0	5	3	0	0	307	0	0	0	0
4:55 PM	42	59	2	0	0	97	22	0	12	0	67	0	3	1	0	0	305	0	0	0	1
5:00 PM	38	60	0	0	0	87	15	0	15	1	84	0	14	3	0	0	317	1	0	0	1
5:05 PM	49	51	0	0	0	82	12	0	17	0	90	0	10	1	0	0	312	0	0	0	0
5:10 PM	52	69	0	0	0	84	15	0	16	0	82	0	4	2	0	0	324	0	0	0	0
5:15 PM	58	54	0	0	0	82	14	0	17	0	79	1	3	0	0	0	307	0	0	0	0
5:20 PM	54	62	1	0	0	81	8	0	13	0	65	0	2	1	0	0	287	0	0	0	0
5:25 PM	52	51	0	1	1	119	14	0	18	1	36	1	5	1	0	0	298	0	0	0	0
5:30 PM	63	50	0	0	0	100	20	0	24	0	60	0	6	0	0	0	323	0	0	0	0
5:35 PM	51	61	0	0	1	90	12	0	17	0	68	0	2	0	0	0	302	0	0	0	0
5:40 PM	53	55	0	0	1	73	14	0	16	0	57	0	3	2	0	0	274	0	0	0	0
5:45 PM	65	54	0	0	0	86	12	0	17	1	51	0	0	2	0	0	288	0	0	0	0
5:50 PM	52	51	0	0	0	46	12	0	13	0	42	0	1	2	0	0	219	0	0	0	0
5:55 PM	56	48	1	0	0	73	14	0	12	0	34	0	2	0	0	0	240	0	0	0	0
Total Survey	1,192	1,305	13	1	6	2,024	315	2	372	3	1,666	2	96	34	2	0	7,028	4	0	2	5

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW 95th Ave				Westbound SW 95th Ave				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	144	157	1	0	2	227	40	0	49	0	271	0	12	6	0	0	909	0	0	0	1
4:15 PM	139	149	3	0	1	275	29	1	39	0	180	0	5	2	0	0	822	1	0	0	0
4:30 PM	131	155	4	0	0	255	31	1	36	0	259	0	14	7	0	0	892	1	0	1	2
4:45 PM	135	178	3	0	0	264	53	0	53	0	208	0	13	5	2	0	914	1	0	1	1
5:00 PM	139	180	0	0	0	253	42	0	48	1	256	0	28	6	0	0	953	1	0	0	1
5:15 PM	164	167	1	1	1	282	36	0	48	1	180	2	10	2	0	0	892	0	0	0	0
5:30 PM	167	166	0	0	2	263	46	0	57	0	185	0	11	2	0	0	899	0	0	0	0
5:45 PM	173	153	1	0	0	205	38	0	42	1	127	0	3	4	0	0	747	0	0	0	0
Total Survey	1,192	1,305	13	1	6	2,024	315	2	372	3	1,666	2	96	34	2	0	7,028	4	0	2	5

Peak Hour Summary
4:40 PM to 5:40 PM

By Approach	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW 95th Ave				Westbound SW 95th Ave				Total
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	
Volume	1,296	2,000	3,296	1	1,257	894	2,151	0	1,057	788	1,845	2	81	9	90	0	3,691
%HV	6.6%				1.8%				3.6%				2.5%				4.0%
PHF	0.93				0.88				0.87				0.60				0.97

Pedestrians Crosswalk			
North	South	East	West
2	0	1	3

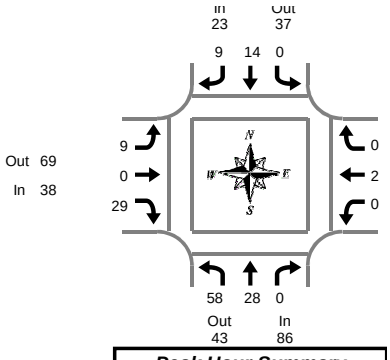
By Movement	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW 95th Ave				Westbound SW 95th Ave				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	599	692	5	1,296	2	1,082	173	1,257	200	2	855	1,057	63	16	2	81	3,691
%HV	9.7%	4.0%	0.0%	6.6%	0.0%	1.3%	5.2%	1.8%	4.5%	0.0%	3.4%	3.6%	0.0%	12.5%	0.0%	2.5%	4.0%
PHF	0.89	0.94	0.42	0.93	0.25	0.88	0.80	0.88	0.85	0.50	0.83	0.87	0.56	0.57	0.25	0.60	0.97

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW 95th Ave				Westbound SW 95th Ave				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	549	639	11	0	3	1,021	153	2	177	0	918	0	44	20	2	0	3,537	3	0	2	4
4:15 PM	544	662	10	0	1	1,047	155	2	176	1	903	0	60	20	2	0	3,581	4	0	2	4
4:30 PM	569	680	8	1	1	1,054	162	1	185	2	903	2	65	20	2	0	3,651	3	0	2	4
4:45 PM	605	691	4	1	3	1,062	177	0	206	2	829	2	62	15	2	0	3,658	2	0	1	2
5:00 PM	643	666	2	1	3	1,003	162	0	195	3	748	2	52	14	0	0	3,491	1	0	0	1

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



SW Boones Ferry Rd & SW 95th Ave

Wednesday, June 07, 2017
4:00 PM to 6:00 PM

Peak Hour Summary
4:40 PM to 5:40 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW 95th Ave				Westbound SW 95th Ave				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	3	3	0	6	0	3	0	3	3	0	3	6	0	1	0	1	16
4:05 PM	9	3	0	12	0	1	0	1	0	0	4	4	0	0	0	0	17
4:10 PM	12	3	0	15	0	5	0	5	0	0	5	5	0	0	0	0	25
4:15 PM	6	4	0	10	0	5	0	5	1	0	3	4	0	0	0	0	19
4:20 PM	7	2	0	9	0	4	1	5	2	0	0	2	0	0	0	0	16
4:25 PM	3	2	0	5	0	3	2	5	0	0	4	4	0	0	0	0	14
4:30 PM	10	3	0	13	0	3	0	3	1	0	6	7	0	0	0	0	23
4:35 PM	9	4	0	13	0	2	1	3	0	0	1	1	0	0	0	0	17
4:40 PM	7	7	0	14	0	0	1	1	1	0	3	4	0	1	0	1	20
4:45 PM	4	8	0	12	0	3	0	3	1	0	2	3	0	0	0	0	18
4:50 PM	4	2	0	6	0	0	2	2	1	0	3	4	0	0	0	0	12
4:55 PM	5	2	0	7	0	3	2	5	1	0	4	5	0	0	0	0	17
5:00 PM	6	1	0	7	0	0	1	1	0	0	1	1	0	0	0	0	9
5:05 PM	4	1	0	5	0	1	1	2	0	0	4	4	0	0	0	0	11
5:10 PM	4	1	0	5	0	1	0	1	1	0	3	4	0	1	0	1	11
5:15 PM	8	1	0	9	0	4	0	4	1	0	5	6	0	0	0	0	19
5:20 PM	2	1	0	3	0	0	0	0	0	0	1	1	0	0	0	0	4
5:25 PM	2	2	0	4	0	0	1	1	0	0	1	1	0	0	0	0	6
5:30 PM	9	2	0	11	0	1	0	1	3	0	0	3	0	0	0	0	15
5:35 PM	3	0	0	3	0	1	1	2	0	0	2	2	0	0	0	0	7
5:40 PM	2	4	0	6	0	1	0	1	1	0	2	3	0	1	0	1	11
5:45 PM	4	0	0	4	0	2	0	2	0	0	3	3	0	0	0	0	9
5:50 PM	4	3	0	7	0	0	2	2	2	0	2	4	0	0	0	0	13
5:55 PM	0	3	0	3	0	2	0	2	1	0	4	5	0	0	0	0	10
Total Survey	127	62	0	189	0	45	15	60	20	0	66	86	0	4	0	4	339

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW 95th Ave				Westbound SW 95th Ave				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	24	9	0	33	0	9	0	9	3	0	12	15	0	1	0	1	58
4:15 PM	16	8	0	24	0	12	3	15	3	0	7	10	0	0	0	0	49
4:30 PM	26	14	0	40	0	5	2	7	2	0	10	12	0	1	0	1	60
4:45 PM	13	12	0	25	0	6	4	10	3	0	9	12	0	0	0	0	47
5:00 PM	14	3	0	17	0	2	2	4	1	0	8	9	0	1	0	1	31
5:15 PM	12	4	0	16	0	4	1	5	1	0	7	8	0	0	0	0	29
5:30 PM	14	6	0	20	0	3	1	4	4	0	4	8	0	1	0	1	33
5:45 PM	8	6	0	14	0	4	2	6	3	0	9	12	0	0	0	0	32
Total Survey	127	62	0	189	0	45	15	60	20	0	66	86	0	4	0	4	339

Heavy Vehicle Peak Hour Summary
4:40 PM to 5:40 PM

By Approach	Northbound SW Boones Ferry Rd			Southbound SW Boones Ferry Rd			Eastbound SW 95th Ave			Westbound SW 95th Ave			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	86	43	129	23	37	60	38	69	107	2	0	2	149
PHF	0.67			0.58			0.68			0.50			0.75

By Movement	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW 95th Ave				Westbound SW 95th Ave				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	58	28	0	86	0	14	9	23	9	0	29	38	0	2	0	2	149
PHF	0.91	0.41	0.00	0.67	0.00	0.58	0.45	0.58	0.75	0.00	0.60	0.68	0.00	0.50	0.00	0.50	0.75

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

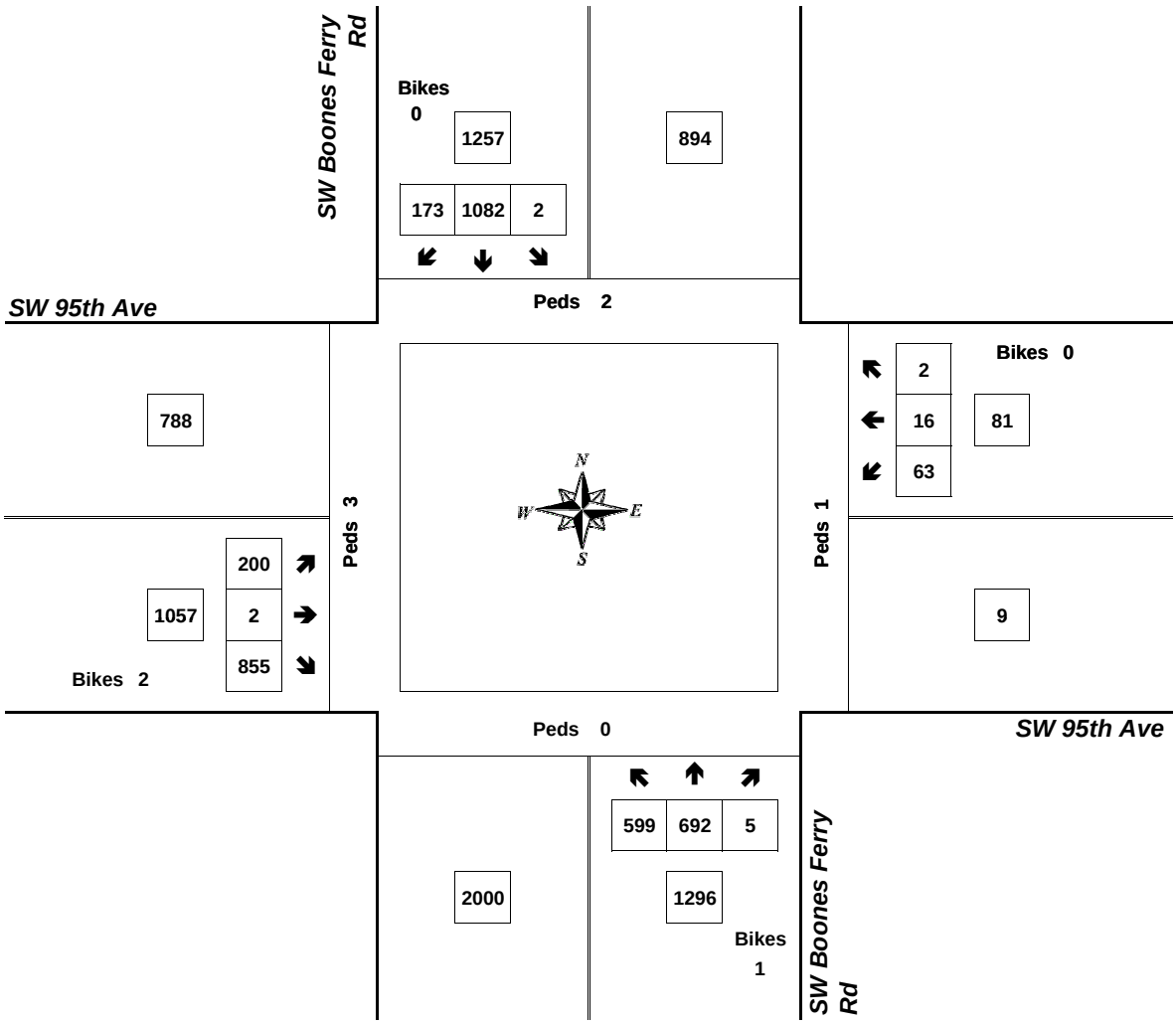
Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW 95th Ave				Westbound SW 95th Ave				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	79	43	0	122	0	32	9	41	11	0	38	49	0	2	0	2	214
4:15 PM	69	37	0	106	0	25	11	36	9	0	34	43	0	2	0	2	187
4:30 PM	65	33	0	98	0	17	9	26	7	0	34	41	0	2	0	2	167
4:45 PM	53	25	0	78	0	15	8	23	9	0	28	37	0	2	0	2	140
5:00 PM	48	19	0	67	0	13	6	19	9	0	28	37	0	2	0	2	125

Peak Hour Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740

SW Boones Ferry Rd & SW 95th Ave

4:40 PM to 5:40 PM
Wednesday, June 07, 2017

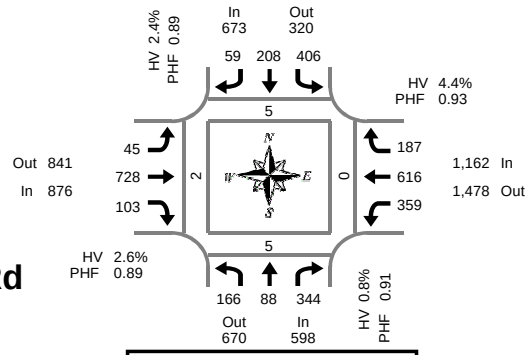


Approach	PHF	HV%	Volume
EB	0.87	3.6%	1,057
WB	0.60	2.5%	81
NB	0.93	6.6%	1,296
SB	0.88	1.8%	1,257
Intersection	0.97	4.0%	3,691

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



SW Boones Ferry Rd & SW Wilsonville Rd

Wednesday, June 07, 2017
4:00 PM to 6:00 PM

Peak Hour Summary
4:50 PM to 5:50 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	18	0	28	0	34	6	0	0	3	71	8	0	35	39	14	0	256	0	1	0	0
4:05 PM	9	7	28	0	52	18	6	0	4	71	7	0	20	40	12	0	274	1	0	0	0
4:10 PM	6	4	23	0	35	17	2	0	1	69	8	0	25	48	14	0	252	0	0	0	0
4:15 PM	12	9	30	0	30	9	8	0	1	60	9	0	38	42	14	1	262	2	0	0	0
4:20 PM	11	13	41	0	46	15	4	0	3	48	3	0	28	35	21	0	268	2	0	1	1
4:25 PM	22	11	31	0	39	14	1	0	3	76	13	0	16	33	14	0	273	3	0	0	0
4:30 PM	5	6	26	0	39	11	4	0	2	55	12	0	30	49	18	1	257	0	0	0	1
4:35 PM	17	11	33	2	31	7	1	0	3	62	8	0	37	42	13	3	265	1	0	0	2
4:40 PM	17	13	24	0	34	13	4	0	5	52	6	0	31	34	10	0	243	0	0	0	0
4:45 PM	11	8	19	0	42	13	5	0	0	58	4	0	28	55	9	0	252	0	0	0	1
4:50 PM	9	5	29	0	32	14	3	0	4	54	11	0	44	57	15	0	277	0	0	0	0
4:55 PM	10	3	42	0	23	14	6	0	3	59	8	0	26	47	15	0	256	0	0	0	0
5:00 PM	13	11	30	0	33	21	4	0	2	53	8	0	30	32	15	0	252	0	0	0	0
5:05 PM	8	7	22	0	48	14	9	0	5	73	10	0	24	62	16	0	298	0	0	0	0
5:10 PM	11	8	39	0	31	14	4	0	2	80	13	0	34	50	12	0	298	1	0	0	0
5:15 PM	19	7	23	0	39	22	5	0	4	43	7	0	32	42	14	0	257	1	0	0	0
5:20 PM	24	14	16	0	30	24	4	0	2	74	2	0	23	61	15	0	289	0	0	0	0
5:25 PM	18	6	34	0	39	13	7	0	6	74	6	0	30	57	18	0	308	0	2	0	0
5:30 PM	12	7	33	0	19	9	2	0	4	52	8	0	33	56	20	1	255	0	2	0	1
5:35 PM	15	11	23	0	47	22	4	0	7	39	12	0	23	42	19	0	264	0	1	0	1
5:40 PM	18	4	20	0	43	25	7	0	2	61	12	0	22	56	16	1	286	1	0	0	0
5:45 PM	9	5	33	0	22	16	4	0	4	66	6	0	38	54	12	0	269	2	0	0	0
5:50 PM	16	7	32	0	31	19	5	0	4	52	8	0	29	43	10	0	256	0	0	0	0
5:55 PM	12	9	27	0	38	12	6	0	1	31	4	0	31	38	12	0	221	2	0	0	1
Total Survey	322	186	686	2	857	362	105	0	75	1,433	193	0	707	1,114	348	7	6,388	16	6	1	8

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	33	11	79	0	121	41	8	0	8	211	23	0	80	127	40	0	782	1	1	0	0
4:15 PM	45	33	102	0	115	38	13	0	7	184	25	0	82	110	49	1	803	7	0	1	1
4:30 PM	39	30	83	2	104	31	9	0	10	169	26	0	98	125	41	4	765	1	0	0	3
4:45 PM	30	16	90	0	97	41	14	0	7	171	23	0	98	159	39	0	785	0	0	0	1
5:00 PM	32	26	91	0	112	49	17	0	9	206	31	0	88	144	43	0	848	1	0	0	0
5:15 PM	61	27	73	0	108	59	16	0	12	191	15	0	85	160	47	0	854	1	2	0	0
5:30 PM	45	22	76	0	109	56	13	0	13	152	32	0	78	154	55	2	805	1	3	0	2
5:45 PM	37	21	92	0	91	47	15	0	9	149	18	0	98	135	34	0	746	4	0	0	1
Total Survey	322	186	686	2	857	362	105	0	75	1,433	193	0	707	1,114	348	7	6,388	16	6	1	8

Peak Hour Summary
4:50 PM to 5:50 PM

By Approach	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	598	670	1,268	0	673	320	993	0	876	841	1,717	0	1,162	1,478	2,640	2	3,309	5	5	0	2
%HV	0.8%				2.4%				2.6%				4.4%				2.9%				
PHF	0.91				0.89				0.89				0.93				0.97				

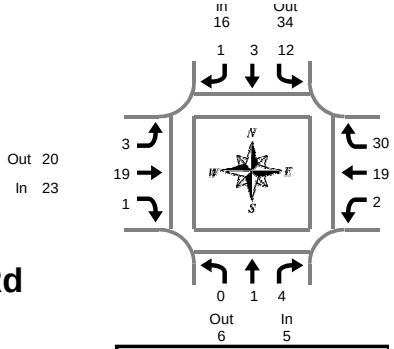
By Movement	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	166	88	344	598	406	208	59	673	45	728	103	876	359	616	187	1,162	3,309
%HV	0.0%	1.1%	1.2%	0.8%	3.0%	1.4%	1.7%	2.4%	6.7%	2.6%	1.0%	2.6%	0.6%	3.1%	16.0%	4.4%	2.9%
PHF	0.68	0.76	0.85	0.91	0.86	0.83	0.78	0.89	0.66	0.88	0.80	0.89	0.90	0.89	0.82	0.93	0.97

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	147	90	354	2	437	151	44	0	32	735	97	0	358	521	169	5	3,135	9	1	1	5
4:15 PM	146	105	366	2	428	159	53	0	33	730	105	0	366	538	172	5	3,201	9	0	1	5
4:30 PM	162	99	337	2	421	180	56	0	38	737	95	0	369	588	170	4	3,252	3	2	0	4
4:45 PM	168	91	330	0	426	205	60	0	41	720	101	0	349	617	184	2	3,292	3	5	0	3
5:00 PM	175	96	332	0	420	211	61	0	43	698	96	0	349	593	179	2	3,253	7	5	0	3

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



SW Boones Ferry Rd & SW Wilsonville Rd

Wednesday, June 07, 2017
4:00 PM to 6:00 PM

Peak Hour Summary
4:50 PM to 5:50 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	5	0	5	0	1	2	3	8
4:05 PM	0	1	1	2	5	1	1	7	0	5	0	5	0	4	1	5	19
4:10 PM	0	0	0	0	1	1	0	2	0	1	1	2	0	2	1	3	7
4:15 PM	0	1	0	1	1	0	0	1	0	2	0	2	1	4	4	9	13
4:20 PM	0	2	0	2	3	1	1	5	0	4	0	4	0	2	3	5	16
4:25 PM	0	0	0	0	1	0	0	1	0	1	1	2	0	2	5	7	10
4:30 PM	0	0	0	0	0	0	0	0	1	1	0	2	1	3	4	8	10
4:35 PM	0	0	1	1	0	0	0	0	0	1	0	1	0	1	3	4	6
4:40 PM	0	0	0	0	5	1	0	6	0	2	0	2	2	0	1	3	11
4:45 PM	0	1	2	3	1	0	0	1	0	1	0	1	0	2	2	4	9
4:50 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	4	5	6
4:55 PM	0	0	0	0	2	0	0	2	0	2	0	2	0	2	0	2	6
5:00 PM	0	0	0	0	2	0	0	2	0	0	0	0	1	1	5	7	9
5:05 PM	0	0	0	0	1	0	0	1	0	1	0	1	0	3	4	7	9
5:10 PM	0	0	1	1	2	1	0	3	0	3	0	3	0	2	3	5	12
5:15 PM	0	0	1	1	1	0	0	1	2	0	0	2	1	1	3	5	9
5:20 PM	0	1	0	1	1	0	0	1	0	3	0	3	0	4	2	6	11
5:25 PM	0	0	0	0	1	0	1	2	0	1	0	1	0	1	4	5	8
5:30 PM	0	0	0	0	0	1	0	1	1	3	0	4	0	0	2	2	7
5:35 PM	0	0	0	0	1	0	0	1	0	0	1	1	0	2	0	2	4
5:40 PM	0	0	0	0	0	1	0	1	0	4	0	4	0	0	1	1	6
5:45 PM	0	0	2	2	1	0	0	1	0	1	0	1	0	2	2	4	8
5:50 PM	0	0	0	0	1	0	0	1	0	0	0	0	1	2	1	4	5
5:55 PM	0	1	0	1	1	0	0	1	0	0	0	0	0	1	1	2	4
Total Survey	0	7	8	15	31	7	3	41	4	42	3	49	7	43	58	108	213

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	1	1	2	6	2	1	9	0	11	1	12	0	7	4	11	34
4:15 PM	0	3	0	3	5	1	1	7	0	7	1	8	1	8	12	21	39
4:30 PM	0	0	1	1	5	1	0	6	1	4	0	5	3	4	8	15	27
4:45 PM	0	1	2	3	3	0	0	3	0	4	0	4	0	5	6	11	21
5:00 PM	0	0	1	1	5	1	0	6	0	4	0	4	1	6	12	19	30
5:15 PM	0	1	1	2	3	0	1	4	2	4	0	6	1	6	9	16	28
5:30 PM	0	0	0	0	1	2	0	3	1	7	1	9	0	2	3	5	17
5:45 PM	0	1	2	3	3	0	0	3	0	1	0	1	1	5	4	10	17
Total Survey	0	7	8	15	31	7	3	41	4	42	3	49	7	43	58	108	213

Heavy Vehicle Peak Hour Summary
4:50 PM to 5:50 PM

By Approach	Northbound SW Boones Ferry Rd			Southbound SW Boones Ferry Rd			Eastbound SW Wilsonville Rd			Westbound SW Wilsonville Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	5	6	11	16	34	50	23	20	43	51	35	86	95
PHF	0.42			0.67			0.64			0.67			0.74

By Movement	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	1	4	5	12	3	1	16	3	19	1	23	2	19	30	51	95
PHF	0.00	0.25	0.50	0.42	0.60	0.38	0.25	0.67	0.38	0.68	0.25	0.64	0.50	0.68	0.63	0.67	0.74

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	5	4	9	19	4	2	25	1	26	2	29	4	24	30	58	121
4:15 PM	0	4	4	8	18	3	1	22	1	19	1	21	5	23	38	66	117
4:30 PM	0	2	5	7	16	2	1	19	3	16	0	19	5	21	35	61	106
4:45 PM	0	2	4	6	12	3	1	16	3	19	1	23	2	19	30	51	96
5:00 PM	0	2	4	6	12	3	1	16	3	16	1	20	3	19	28	50	92

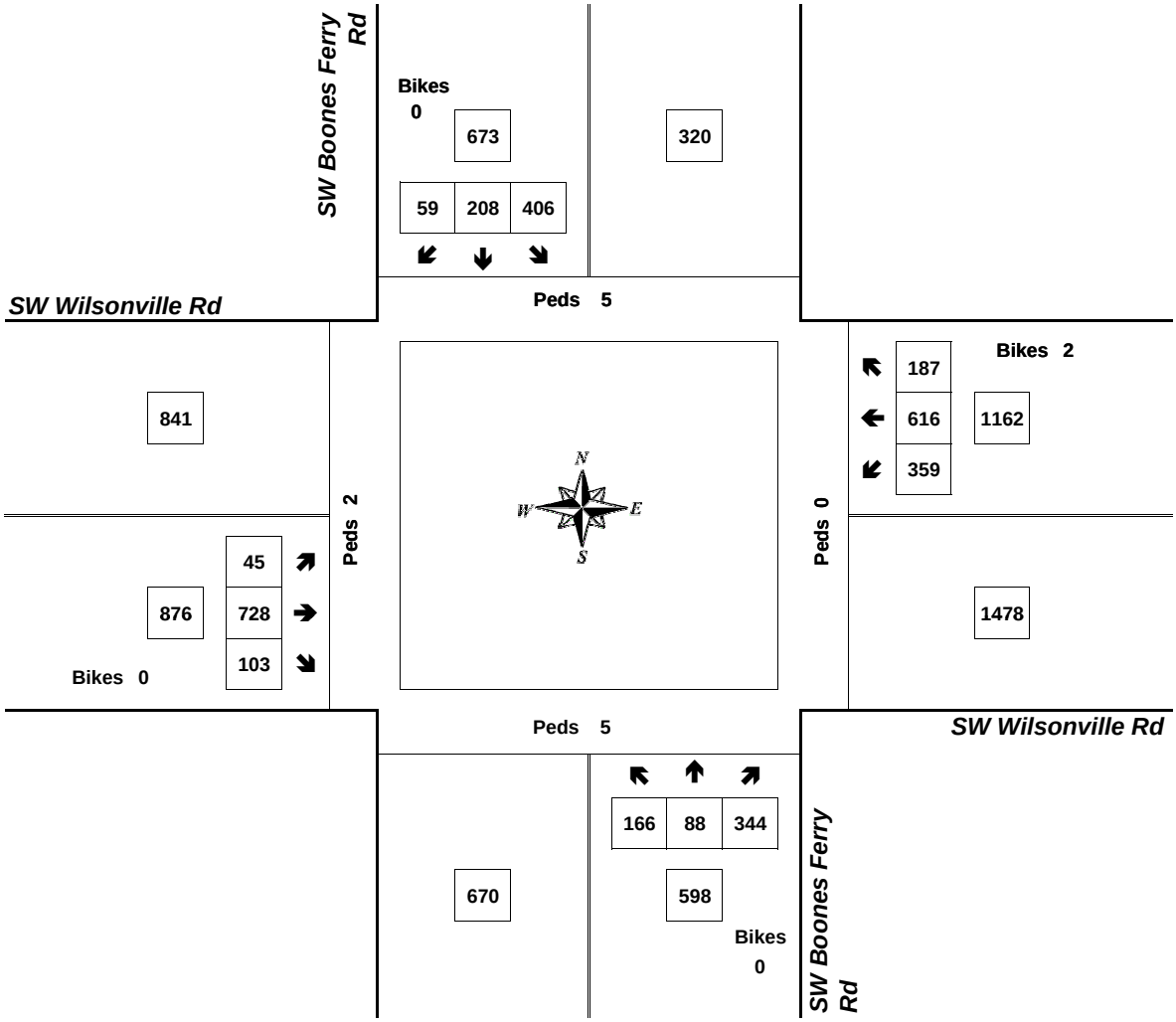
Peak Hour Summary

All Traffic Data Services Inc.

Clay Carney
(503) 833-2740

SW Boones Ferry Rd & SW Wilsonville Rd

4:50 PM to 5:50 PM
Wednesday, June 07, 2017

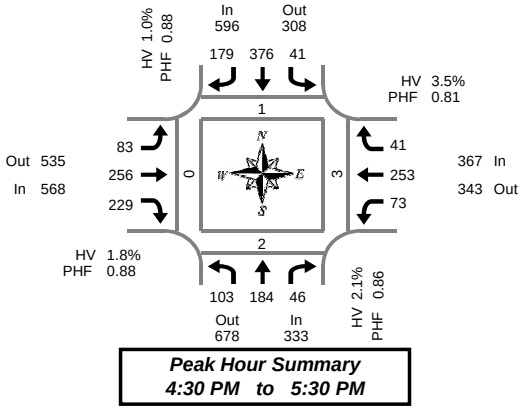


Approach	PHF	HV%	Volume
EB	0.89	2.6%	876
WB	0.93	4.4%	1,162
NB	0.91	0.8%	598
SB	0.89	2.4%	673
Intersection	0.97	2.9%	3,309

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:30 PM to 5:30 PM

SW Parkway Ave & SW Boeckman Rd

Tuesday, January 24, 2017
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	11	21	3	0	5	40	28	0	4	16	18	0	3	18	0	0	167	0	0	0	0
4:05 PM	10	5	2	0	2	36	10	0	7	22	18	0	4	16	5	0	137	0	0	0	0
4:10 PM	11	15	5	0	3	32	11	0	9	16	14	0	7	12	2	0	137	0	0	1	0
4:15 PM	10	13	5	0	2	30	14	0	7	20	23	0	4	17	3	0	148	0	0	0	0
4:20 PM	10	21	5	0	1	28	13	0	4	19	16	0	4	14	2	0	137	0	0	0	0
4:25 PM	8	12	4	0	3	32	10	0	0	20	17	0	4	12	1	0	123	0	0	0	0
4:30 PM	13	21	5	0	6	27	14	0	8	24	16	0	4	21	2	0	161	0	1	1	0
4:35 PM	7	15	7	0	2	35	15	0	8	22	16	0	4	18	2	0	151	0	0	0	0
4:40 PM	7	18	4	0	0	26	13	0	5	19	29	0	6	21	1	0	149	1	0	1	0
4:45 PM	8	14	4	0	3	28	13	0	3	27	20	0	3	14	5	0	142	0	0	0	0
4:50 PM	6	12	2	0	5	37	13	0	11	16	15	0	7	22	3	0	149	0	0	0	0
4:55 PM	8	12	4	0	3	22	14	0	7	18	19	0	4	15	3	0	129	0	1	1	0
5:00 PM	3	15	3	0	6	34	20	0	3	22	18	0	6	22	1	0	153	0	0	0	0
5:05 PM	8	14	2	0	3	40	15	0	6	17	19	1	12	25	6	0	167	0	0	0	0
5:10 PM	12	11	3	0	4	36	12	0	17	30	21	0	7	19	2	0	174	0	0	0	0
5:15 PM	10	21	3	0	2	32	16	0	2	23	26	0	5	32	5	0	177	0	0	0	0
5:20 PM	10	19	6	0	6	35	16	0	6	19	12	0	5	21	3	0	158	0	0	0	0
5:25 PM	11	12	3	0	1	24	18	0	7	19	18	0	10	23	8	0	154	0	0	0	0
5:30 PM	10	6	4	0	2	25	11	0	2	16	15	0	9	20	4	0	124	0	0	0	0
5:35 PM	6	16	5	0	5	23	14	0	3	10	29	0	5	11	2	0	129	0	0	0	0
5:40 PM	6	13	3	0	0	30	15	0	9	15	12	0	8	12	0	0	123	0	0	0	0
5:45 PM	17	10	4	0	2	17	7	0	4	16	18	0	3	12	1	0	111	0	0	0	0
5:50 PM	7	14	3	0	3	32	22	0	6	5	7	0	6	9	1	0	115	0	0	0	0
5:55 PM	4	12	4	0	3	29	9	0	12	13	11	0	10	15	4	1	126	0	0	1	0
Total Survey	213	342	93	0	72	730	343	0	150	444	427	1	140	421	66	1	3,441	1	2	5	0

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	32	41	10	0	10	108	49	0	20	54	50	0	14	46	7	0	441	0	0	1	0
4:15 PM	28	46	14	0	6	90	37	0	11	59	56	0	12	43	6	0	408	0	0	0	0
4:30 PM	27	54	16	0	8	88	42	0	21	65	61	0	14	60	5	0	461	1	1	2	0
4:45 PM	22	38	10	0	11	87	40	0	21	61	54	0	14	51	11	0	420	0	1	1	0
5:00 PM	23	40	8	0	13	110	47	0	26	69	58	1	25	66	9	0	494	0	0	0	0
5:15 PM	31	52	12	0	9	91	50	0	15	61	56	0	20	76	16	0	489	0	0	0	0
5:30 PM	22	35	12	0	7	78	40	0	14	41	56	0	22	43	6	0	376	0	0	0	0
5:45 PM	28	36	11	0	8	78	38	0	22	34	36	0	19	36	6	1	352	0	0	1	0
Total Survey	213	342	93	0	72	730	343	0	150	444	427	1	140	421	66	1	3,441	1	2	5	0

Peak Hour Summary
4:30 PM to 5:30 PM

By Approach	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	333	678	1,011	0	596	308	904	0	568	535	1,103	1	367	343	710	0	1,864	1	2	3	0
%HV	2.1%				1.0%				1.8%				3.5%				1.9%				
PHF	0.86				0.88				0.88				0.81				0.90				

By Movement	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	103	184	46	333	41	376	179	596	83	256	229	568	73	253	41	367	1,864
%HV	1.9%	1.6%	4.3%	2.1%	2.4%	1.1%	0.6%	1.0%	1.2%	2.3%	1.3%	1.8%	2.7%	4.0%	2.4%	3.5%	1.9%
PHF	0.80	0.85	0.72	0.86	0.73	0.85	0.90	0.88	0.80	0.89	0.87	0.88	0.73	0.83	0.64	0.81	0.90

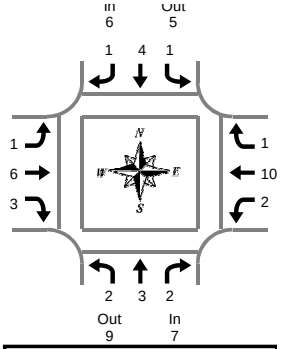
Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	109	179	50	0	35	373	168	0	73	239	221	0	54	200	29	0	1,730	1	2	4	0
4:15 PM	100	178	48	0	38	375	166	0	79	254	229	1	65	220	31	0	1,783	1	2	3	0
4:30 PM	103	184	46	0	41	376	179	0	83	256	229	1	73	253	41	0	1,864	1	2	3	0
4:45 PM	98	165	42	0	40	366	177	0	76	232	224	1	81	236	42	0	1,779	0	1	1	0
5:00 PM	104	163	43	0	37	357	175	0	77	205	206	1	86	221	37	1	1,711	0	0	1	0

Heavy Vehicle Summary

Clay Carney
(503) 833-2740

Out 13
In 10



SW Parkway Ave & SW Boeckman Rd

Tuesday, January 24, 2017
4:00 PM to 6:00 PM

Peak Hour Summary
4:30 PM to 5:30 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	1	1	2	0	0	2	0	2	0	2	5
4:05 PM	0	0	0	0	0	0	0	0	0	4	1	5	0	0	1	1	6
4:10 PM	0	1	0	1	0	1	0	1	0	0	0	0	1	2	0	3	5
4:15 PM	1	1	0	2	0	0	1	1	0	0	0	0	0	0	0	0	3
4:20 PM	0	2	0	2	0	0	1	1	0	2	0	2	0	2	0	2	7
4:25 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	1	0	1	3
4:30 PM	1	0	0	1	1	0	0	1	0	3	1	4	0	2	0	2	8
4:35 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	4	0	4	5
4:40 PM	0	0	0	0	0	1	0	1	0	0	1	1	1	0	0	1	3
4:45 PM	0	1	0	1	0	0	0	0	0	0	1	1	0	0	0	0	2
4:50 PM	0	0	1	1	0	0	1	1	0	0	0	0	0	1	0	1	3
4:55 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
5:00 PM	0	0	0	0	0	1	0	1	0	1	0	1	0	0	0	0	2
5:05 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1	2	3
5:10 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
5:15 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	1	0	1	3
5:20 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	2
5:25 PM	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	1	2
5:30 PM	0	0	0	0	0	1	0	1	0	2	0	2	0	0	0	0	3
5:35 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1	2
5:40 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
5:45 PM	1	1	0	2	0	0	0	0	0	0	0	0	0	1	0	1	3
5:50 PM	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1	2
5:55 PM	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	1	2
Total Survey	4	9	3	16	1	8	4	13	4	16	4	24	5	18	3	26	79

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	1	0	1	0	1	1	2	2	4	1	7	1	4	1	6	16
4:15 PM	1	4	0	5	0	1	2	3	0	2	0	2	0	3	0	3	13
4:30 PM	1	1	0	2	1	1	0	2	0	3	2	5	1	6	0	7	16
4:45 PM	0	1	1	2	0	0	1	1	1	0	1	2	0	1	0	1	6
5:00 PM	0	0	0	0	0	2	0	2	0	3	0	3	0	1	1	2	7
5:15 PM	1	1	1	3	0	1	0	1	0	0	0	0	1	2	0	3	7
5:30 PM	0	0	0	0	0	2	0	2	0	4	0	4	0	0	1	1	7
5:45 PM	1	1	1	3	0	0	0	0	1	0	0	1	2	1	0	3	7
Total Survey	4	9	3	16	1	8	4	13	4	16	4	24	5	18	3	26	79

Heavy Vehicle Peak Hour Summary
4:30 PM to 5:30 PM

By Approach	Northbound SW Parkway Ave			Southbound SW Parkway Ave			Eastbound SW Boeckman Rd			Westbound SW Boeckman Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	7	9	16	6	5	11	10	13	23	13	9	22	36
PHF	0.58			0.75			0.50			0.46			0.56

By Movement	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	2	3	2	7	1	4	1	6	1	6	3	10	2	10	1	13	36
PHF	0.50	0.38	0.50	0.58	0.25	0.50	0.25	0.75	0.25	0.50	0.38	0.50	0.50	0.42	0.25	0.46	0.56

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	2	7	1	10	1	3	4	8	3	9	4	16	2	14	1	17	51
4:15 PM	2	6	1	9	1	4	3	8	1	8	3	12	1	11	1	13	42
4:30 PM	2	3	2	7	1	4	1	6	1	6	3	10	2	10	1	13	36
4:45 PM	1	2	2	5	0	5	1	6	1	7	1	9	1	4	2	7	27
5:00 PM	2	2	2	6	0	5	0	5	1	7	0	8	3	4	2	9	28

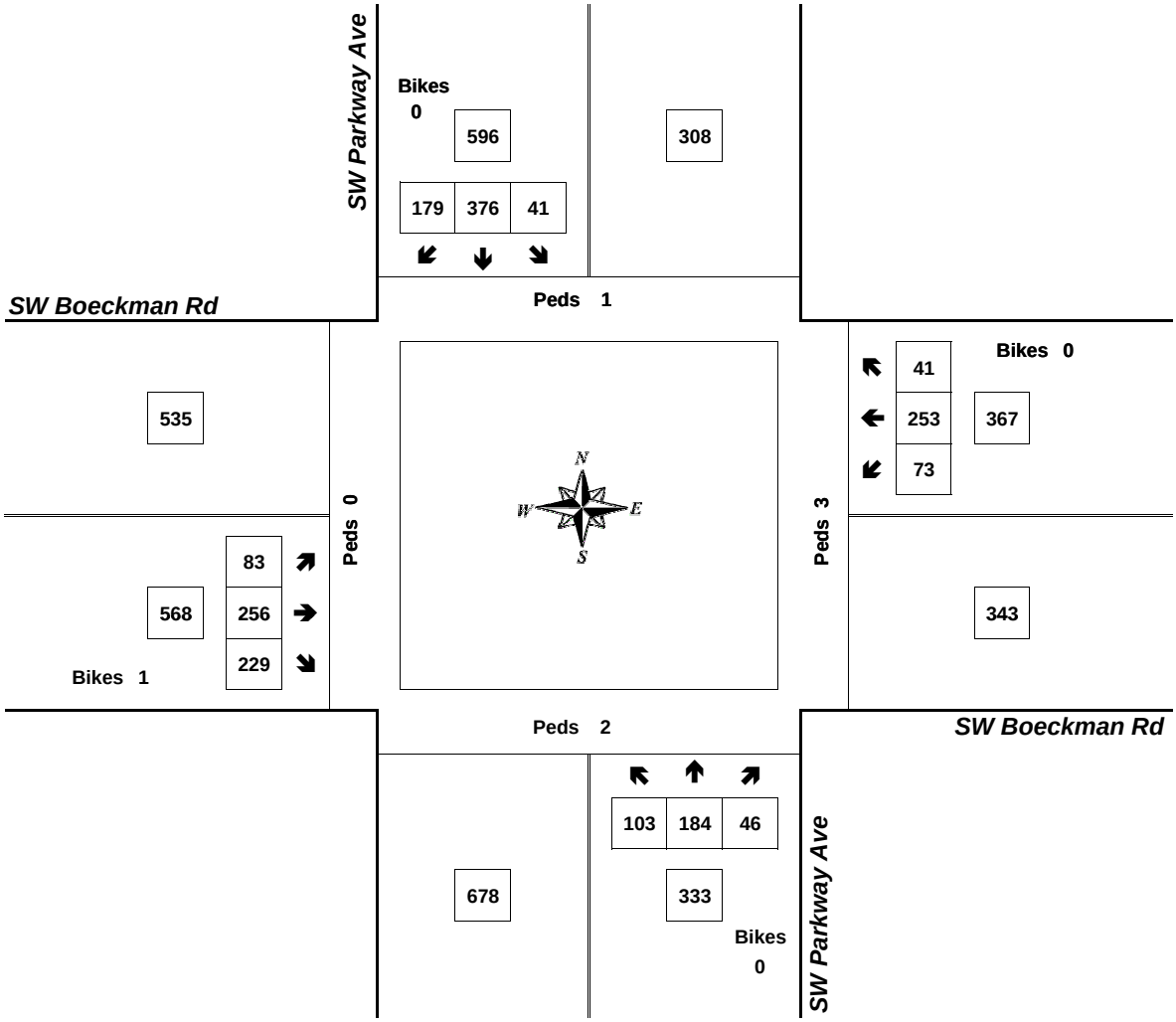
Peak Hour Summary

All Traffic Data Services Inc.

Clay Carney
(503) 833-2740

SW Parkway Ave & SW Boeckman Rd

4:30 PM to 5:30 PM
Tuesday, January 24, 2017



Approach	PHF	HV%	Volume
EB	0.88	1.8%	568
WB	0.81	3.5%	367
NB	0.86	2.1%	333
SB	0.88	1.0%	596
Intersection	0.90	1.9%	1,864

Count Period: 4:00 PM to 6:00 PM

Level of Service Descriptions

TRAFFIC LEVELS OF SERVICE

Analysis of traffic volumes is useful in understanding the general nature of traffic in an area, but by itself indicates neither the ability of the street network to carry additional traffic nor the quality of service afforded by the street facilities. For this, the concept of level of service has been developed to subjectively describe traffic performance. Level of service can be measured at intersections and along key roadway segments.

Levels of service categories are similar to report card ratings for traffic performance. Intersections are typically the controlling bottlenecks of traffic flow and the ability of a roadway system to carry traffic efficiently is generally diminished in their vicinities. Levels of Service A, B and C indicate conditions where traffic moves without significant delays over periods of peak travel demand. Level of service D and E are progressively worse peak hour operating conditions and F conditions represent where demand exceeds the capacity of an intersection. Most urban communities set level of service D as the minimum acceptable level of service for peak hour operation and plan for level of service C or better for all other times of the day. The Highway Capacity Manual provides level of service calculation methodology for both intersections and arterials[1]. The following two sections provide interpretations of the analysis approaches.

[1] *2000 Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2000, Chapter 16 and 17.

UNSIGNALIZED INTERSECTIONS (Two-Way Stop Controlled)

Unsignalized intersection level of service is reported for the major street and minor street (generally, left turn movements). The method assesses available and critical gaps in the traffic stream which make it possible for side street traffic to enter the main street flow. The 2010 Highway Capacity Manual describes the detailed methodology. It is not unusual for an intersection to experience level of service E or F conditions for the minor street left turn movement. It should be understood that, often, a poor level of service is experienced by only a few vehicles and the intersection as a whole operates acceptably.

Unsignalized intersection levels of service are described in the following table.

Level-of-Service Criteria: Automobile Mode

Control Delay (s/vehicle)	**LOS by Volume-to-Capacity Ratio**	
	***v/c* ≤ 1.0**	***v/c* > 1.0**
0-10	A	F
>10-15	B	F
>15-25	C	F
>25-35	D	F
>35-50	E	F
>50	F	F

Note: The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole

SIGNALIZED INTERSECTIONS

For signalized intersections, level of service is evaluated based upon average vehicle delay experienced by vehicles entering an intersection. Control delay (or signal delay) includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. In previous versions of this chapter of the HCM (1994 and earlier), delay included only stopped delay. As delay increases, the level of service decreases. Calculations for signalized and unsignalized intersections are different due to the variation in traffic control. The 2000 Highway Capacity Manual provides the basis for these calculations.

Level of Service	Delay (secs.)	Description
A	<10.00	**Free Flow/Insignificant Delays:** No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Most vehicles do not stop at all. Progression is extremely favorable and most vehicles arrive during the green phase.
B	10.1-20.0	**Stable Operation/Minimal Delays:** An occasional approach phase is fully utilized. Many drivers begin to feel somewhat restricted within platoons of vehicles. This level generally occurs with good progression, short cycle lengths, or both.
C	20.1-35.0	**Stable Operation/Acceptable Delays:** Major approach phases fully utilized. Most drivers feel somewhat restricted. Higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, and the number of vehicles stopping is significant.
D	35.1-55.0	**Approaching Unstable/Tolerable Delays:** The influence of congestion becomes more noticeable. Drivers may have to wait through more than one red signal indication. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. The proportion of vehicles not stopping declines, and individual cycle failures are noticeable.
E	55.1-80.0	**Unstable Operation/Significant Delays:** Volumes at or near capacity. Vehicles may wait though several signal cycles. Long queues form upstream from intersection. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are a frequent occurrence.
F	>80.0	**Forced Flow/Excessive Delays:** Represents jammed conditions. Queues may block upstream intersections. This level occurs when arrival flow rates exceed intersection capacity, and is considered to be unacceptable to most drivers. Poor progression, long cycle lengths, and v/c ratios approaching 1.0 may contribute to these high delay levels.

Source: *2000 Highway Capacity Manual*, Transportation Research Board, Washington D.C.

Trip Generation Summary

Vistro File: S:\...\DW Fritz (Project Trip Distribution).vistro
Report File: S:\...\Project Trips Phase 1.pdf

Scenario 2 Phase 1 Trips
7/20/2017

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	SW Boones Ferry Road/SW 95th Avenue	10	0	0	0	0	2	3	0	17	0	0	0	32

ID	Intersection Name	Southwestbound			Northwestbound		Southeastbound		Total Volume
		Left	Thru	Right	Thru	Right	Thru	Right	
2	SW Elligsen/I-5 SB Ramp	0	0	10	0	0	17	0	27

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Boeckman Rd/SW 95th Avenue	0	0	0	0	0	12	20	18	0	0	10	0	60

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Boeckman Road/SW Parkway Avenue	0	0	0	0	0	0	0	18	0	0	10	0	28

ID	Intersection Name	Northbound			Eastbound			Westbound			Southwestbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	SW Wilsonville Road/SW Boones Ferry Road	0	0	0	0	13	0	0	8	0	0	0	0	21

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
6	SW Wilsonville Road/I-5 SB Ramp	0	0	0	0	13	0	8	21

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
12	West Driveway	29	0	0	0	0	0	0	0	18	0	0	0	47

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
13	East Driveway	0	0	38	0	0	0	0	0	0	22	0	0	60

DW Frtiz TIA

Vistro File: S:\...\DW Fritz (Project Trip Distribution).vistro
Report File: S:\...\Project Trips Phase 2.pdf

Scenario 3 Phase 2 Trips
7/20/2017

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	SW Boones Ferry Road/SW 95th Avenue	15	0	0	0	0	3	5	0	23	0	0	0	46

ID	Intersection Name	Southwestbound			Northwestbound		Southeastbound		Total Volume
		Left	Thru	Right	Thru	Right	Thru	Right	
2	SW Elligsen/I-5 SB Ramp	0	0	15	0	0	23	0	38

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Boeckman Rd/SW 95th Avenue	0	0	0	0	0	18	28	21	0	0	15	0	82

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Boeckman Road/SW Parkway Avenue	0	0	0	0	0	0	0	21	0	0	15	0	36

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	SW Wilsonville Road/SW Boones Ferry Road	0	0	0	0	0	0	0	18	0	0	12	0	30

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
6	SW Wilsonville Road/I-5 SB Ramp	0	0	0	0	18	0	12	30

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
14	West Driveway	41	0	0	0	0	0	0	0	27	0	0	0	68

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15	East Driveway	0	0	49	0	0	0	0	0	0	33	0	0	82

City of Wilsonville Stage II List

DKS

Updated by D. Pauly 3.13.17

Stage II Approved									
Project	Land Use	Status	Size	Total PM Peak Trips	Trip Allocation Percentage		Net New (Primary + Diverted) PM Peak Hour Trips not yet active		
					Internal	Pass-By	In	Out	Total
Ash Meadows	MFDU	Built	14 units				9	4	13
Ash Park Subdivision	Residential	Not built	12 units				8	4	12
Hydro-Temp: Recent agreement with the City, the project is vested and so are the traffic trips	Office/Flex-Space	Not built	60.8 KSF				44	46	90
Mercedes Benz (Phase 2)	Auto Dealership	Not built					20	26	46
Renaissance Boat Club (Abele Zone Change TIS)	Residential (Single Family)	25 homes sold and occupied	33 Lots				5	3	8
Shredding Systems (SQFT does not including paint canopy and another canopy)	Industrial/Commercial	Not built	66.8 KSF				20	46	66
Town Center Ph III *and trip dedication to Miller Paint store Uses marked with "*" have not been built and PM peak hr trip sum exceeds remaining vested trip level by 2 trips. It has yet to be determined how to allocate trips between remaining buildings.*	*Fast Food (Pad 2)	Not built	2.5 KSF				18	16	34*
	*High Turnover Restaurant (Pad 1)	Not built	7.5 KSF				24	17	41*
	*Miller Paint store	Not built	5.0 KSF				6	6	12*
	Remaining Approved Total								85
Wilsonville Road Business Park Phase II	Phase 2 - office (2-story building on west parcel)	Partially Built	21.7 KSF				15	71	86
Clackamas Community College Pole Training Yard Expansion	Educational	Not built		0			0	0	0
Universal Health Services	Mental Health Facility	Not built	62K						
Meridian Creek Middle School (formerly Advance Road Middle School)	Educational	Under construction	118K						
14-Lot Single-Family Subdivision at 28500 and 28530 SW Canyon Creek Rd. South	Residential	Under construction	14				9	5	14
SORT Bionergy **Minimal impact, no PM Peak indicated in traffic impact analysis*	Industrial	Not built					*	*	*
Charbonneau Range 40-lot Subdivision	Residential	Approved	40 lots				29	17	46

Stage II Approved – Villebois													
Project	Phase	Status	Land Use					Total PM Peak Trips	Trip Allocation Percentage		Net New (Primary + Diverted) PM Peak Hour Trips not yet active		
			SF	Town.	Apt.	Retail	School		Internal	Pass-By	In	Out	Total
North (Entirety)	Residential	Partially Built, 304 homes sold and occupied	440		10						91	53	143
Grande Pointe (Phase 7 South)	Grande Pointe	Partially Built, 34 homes sold and occupied	100	-	-	-	-	114	4		42	24	66
East	Residential	Partially Built, 394 homes (367 single family and 27 row homes) sold and occupied	576	42							128	89	217
Central	Residential	Partially Built, 490 homes (47 single family, 78 condo/row homes, 365 apartments) occupied	75	459	449	3 KSF					185	94	279

Pending Projects for Which Traffic Analysis has been completed (except Villebois)										
Project	Land Use	Status	Size	Total PM Peak	Trip Allocation Percentage			Net New (Primary) PM Peak Hour Trips		
					Internal	Pass-By	Diverted	In	Out	Total
Mercedes Benz Expansion	Commercial	Land Use Application Not Submitted	53 KSF					18	18	36
Marion Carpet	Industrial	Under Review	30.5 KSF					11	24	35

HCM Analysis – Existing

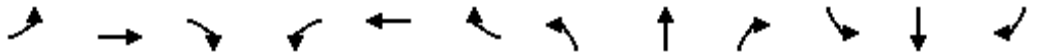
HCM Signalized Intersection Capacity Analysis
1: Boones Ferry Rd & 95th Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	200	2	855	63	16	2	599	754	5	2	1082	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	0.88	1.00	1.00		0.97	0.95		1.00	0.95	1.00
Frpb, ped/bikes		1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85	1.00	0.98		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.95	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1737	2734	1805	1686		3183	3468		1805	3574	1497
Flt Permitted		0.72	1.00	0.43	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1304	2734	809	1686		3183	3468		1805	3574	1497
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	206	2	881	65	16	2	618	777	5	2	1115	178
RTOR Reduction (vph)	0	0	18	0	2	0	0	0	0	0	0	89
Lane Group Flow (vph)	0	208	863	65	16	0	618	782	0	2	1115	89
Confl. Peds. (#/hr)	2					2	3		1	1		3
Confl. Bikes (#/hr)			2						1			
Heavy Vehicles (%)	4%	0%	3%	0%	12%	0%	10%	4%	0%	0%	1%	5%
Turn Type	Perm	NA	pm+ov	Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		8	1		4		1	6		5	2	
Permitted Phases	8		8	4								2
Actuated Green, G (s)		21.5	49.8	21.5	21.5		28.3	70.3		1.2	43.2	43.2
Effective Green, g (s)		21.5	49.8	21.5	21.5		28.3	70.3		1.2	43.2	43.2
Actuated g/C Ratio		0.20	0.47	0.20	0.20		0.27	0.67		0.01	0.41	0.41
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		267	1400	165	345		857	2321		20	1470	615
v/s Ratio Prot			c0.17		0.01		c0.19	0.23		0.00	c0.31	
v/s Ratio Perm		c0.16	0.15	0.08								0.06
v/c Ratio		0.78	0.62	0.39	0.05		0.72	0.34		0.10	0.76	0.14
Uniform Delay, d1		39.5	20.5	36.1	33.5		34.8	7.4		51.4	26.4	19.3
Progression Factor		1.00	1.00	1.00	1.00		1.10	0.62		1.00	1.00	1.00
Incremental Delay, d2		13.4	0.8	1.6	0.1		4.0	0.3		2.2	2.3	0.1
Delay (s)		52.9	21.3	37.7	33.6		42.4	4.9		53.6	28.7	19.4
Level of Service		D	C	D	C		D	A		D	C	B
Approach Delay (s)		27.3			36.8			21.4			27.5	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: I-5 SB On Ramp/I-5 SB Off Ramp & Boones Ferry Road/Elligsen Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1099	901	0	723	406	0	0	0	548	0	635
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0				4.5	4.5	4.5
Lane Util. Factor		0.95	1.00		0.95	1.00				0.95	0.95	1.00
Frpb, ped/bikes		1.00	0.99		1.00	0.98				1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85				1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95	0.95	1.00
Satd. Flow (prot)		3539	1564		3471	1580				1649	1649	1495
Flt Permitted		1.00	1.00		1.00	1.00				0.95	0.95	1.00
Satd. Flow (perm)		3539	1564		3471	1580				1649	1649	1495
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1169	959	0	769	432	0	0	0	583	0	676
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	87
Lane Group Flow (vph)	0	1169	959	0	769	432	0	0	0	291	292	589
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			1			5						
Heavy Vehicles (%)	0%	2%	2%	0%	4%	0%	0%	0%	0%	4%	0%	8%
Turn Type		NA	Free		NA	Free				Split	NA	Prot
Protected Phases		2			6					4	4	4
Permitted Phases			Free			Free						
Actuated Green, G (s)		50.0	105.0		50.0	105.0				45.5	45.5	45.5
Effective Green, g (s)		51.0	105.0		51.0	105.0				45.5	45.5	45.5
Actuated g/C Ratio		0.49	1.00		0.49	1.00				0.43	0.43	0.43
Clearance Time (s)		5.0			5.0					4.5	4.5	4.5
Vehicle Extension (s)		3.0			3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1718	1564		1685	1580				714	714	647
v/s Ratio Prot		c0.33			0.22					0.18	0.18	c0.39
v/s Ratio Perm			0.61			0.27						
v/c Ratio		0.68	0.61		0.46	0.27				0.41	0.41	0.91
Uniform Delay, d1		20.7	0.0		17.8	0.0				20.5	20.5	27.9
Progression Factor		0.86	1.00		1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2		1.6	1.3		0.9	0.4				0.4	0.4	17.1
Delay (s)		19.4	1.3		18.7	0.4				20.9	20.9	44.9
Level of Service		B	A		B	A				C	C	D
Approach Delay (s)		11.2			12.1			0.0			33.8	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

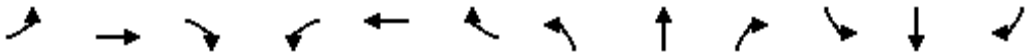
HCM Signalized Intersection Capacity Analysis
3: Boeckman Rd & 95th Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	29	0	3	15	200	0	1	4	388	1	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.88		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1700	1900		1805	1900	1459		1655		1719	1369	
Flt Permitted	1.00	1.00		0.74	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (perm)	1789	1900		1398	1900	1459		1655		1719	1369	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	18	33	0	3	17	225	0	1	4	436	1	12
RTOR Reduction (vph)	0	0	0	0	0	167	0	4	0	0	7	0
Lane Group Flow (vph)	18	33	0	3	17	58	0	1	0	436	6	0
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)			1			2						7
Heavy Vehicles (%)	6%	0%	0%	0%	0%	8%	0%	0%	0%	5%	0%	18%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6		6						
Actuated Green, G (s)	3.9	2.5		20.6	14.7	14.7		0.8		22.1	22.1	
Effective Green, g (s)	3.9	2.5		20.6	14.7	14.7		0.8		22.1	22.1	
Actuated g/C Ratio	0.07	0.04		0.36	0.26	0.26		0.01		0.39	0.39	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)	2.5	3.0		2.5	3.0	3.0		2.5		2.5	2.5	
Lane Grp Cap (vph)	120	83		602	490	376		23		666	530	
v/s Ratio Prot	c0.00	c0.02		0.00	0.01			c0.00		c0.25	0.00	
v/s Ratio Perm	0.01			0.00		c0.04						
v/c Ratio	0.15	0.40		0.00	0.03	0.15		0.05		0.65	0.01	
Uniform Delay, d1	23.7	26.5		11.6	15.8	16.3		27.7		14.3	10.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.4	3.1		0.0	0.0	0.2		0.6		2.1	0.0	
Delay (s)	24.2	29.6		11.7	15.9	16.5		28.3		16.4	10.7	
Level of Service	C	C		B	B	B		C		B	B	
Approach Delay (s)		27.7			16.4			28.3			16.2	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	57.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
4: Parkway Ave & Boeckman Rd

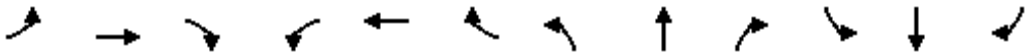


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	83	256	229	73	253	41	103	184	46	41	376	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.98		1.00	0.97		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	1717		1752	1788		1770	1791		1766	1790	
Flt Permitted	0.37	1.00		0.14	1.00		0.11	1.00		0.55	1.00	
Satd. Flow (perm)	696	1717		261	1788		213	1791		1020	1790	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	92	284	254	81	281	46	114	204	51	46	418	199
RTOR Reduction (vph)	0	34	0	0	6	0	0	9	0	0	17	0
Lane Group Flow (vph)	92	504	0	81	321	0	114	246	0	46	600	0
Confl. Peds. (#/hr)	1		2	2		1			3	3		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	1%	2%	1%	3%	4%	2%	2%	2%	4%	2%	1%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	35.1	28.8		34.1	28.3		40.9	35.0		37.3	33.2	
Effective Green, g (s)	35.1	28.8		34.1	28.3		40.9	35.0		37.3	33.2	
Actuated g/C Ratio	0.39	0.32		0.38	0.31		0.45	0.39		0.41	0.37	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	345	545		193	557		197	691		453	655	
v/s Ratio Prot	0.02	c0.29		c0.03	0.18		c0.04	0.14		0.00	c0.34	
v/s Ratio Perm	0.08			0.13			0.22			0.04		
v/c Ratio	0.27	0.92		0.42	0.58		0.58	0.36		0.10	0.92	
Uniform Delay, d1	18.6	29.9		21.2	26.2		19.3	19.8		16.2	27.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	21.6		1.5	1.4		4.1	0.3		0.1	17.5	
Delay (s)	19.0	51.5		22.7	27.6		23.3	20.1		16.3	44.9	
Level of Service	B	D		C	C		C	C		B	D	
Approach Delay (s)		46.7			26.6			21.1			42.9	
Approach LOS		D			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	37.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	90.7	Sum of lost time (s)	17.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5: Boones Ferry Rd & Wilsonville Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	728	103	449	656	207	166	88	344	406	208	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.0		5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.91		0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1687	3100		3467	3600	1348	1805	4600	1599	4000	1809	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1687	3100		3467	3600	1348	1805	4600	1599	4000	1809	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	46	751	106	463	676	213	171	91	355	419	214	61
RTOR Reduction (vph)	0	15	0	0	0	81	0	0	48	0	10	0
Lane Group Flow (vph)	46	842	0	463	676	132	171	91	307	419	265	0
Confl. Peds. (#/hr)	5		5	5		5	2					2
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	7%	3%	1%	1%	3%	16%	0%	1%	1%	3%	1%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	7.0	36.4		18.6	48.0	48.0	15.2	15.2	33.8	19.8	19.8	
Effective Green, g (s)	7.0	37.4		18.6	49.0	49.0	15.2	15.2	33.8	19.8	19.8	
Actuated g/C Ratio	0.06	0.34		0.17	0.45	0.45	0.14	0.14	0.31	0.18	0.18	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	0.5		2.5	4.3	4.3	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	107	1054		586	1603	600	249	635	564	720	325	
v/s Ratio Prot	0.03	c0.27		c0.13	0.19		c0.09	0.02	0.09	0.10	c0.15	
v/s Ratio Perm						0.10			0.10			
v/c Ratio	0.43	0.80		0.79	0.42	0.22	0.69	0.14	0.54	0.58	0.82	
Uniform Delay, d1	49.6	32.9		43.8	20.8	18.8	45.1	41.7	31.7	41.3	43.3	
Progression Factor	1.00	1.00		1.25	0.81	0.60	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.0	6.4		6.4	0.8	0.8	7.0	0.1	0.9	1.0	14.2	
Delay (s)	51.6	39.3		61.3	17.5	12.1	52.1	41.8	32.5	42.3	57.6	
Level of Service	D	D		E	B	B	D	D	C	D	E	
Approach Delay (s)		39.9			31.7			39.3			48.3	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	38.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
6: I-5 SB & Wilsonville Rd

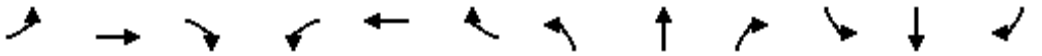
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	883	595	548	915	0	0	0	0	400	1	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Lane Util. Factor		0.91	1.00	0.97	0.95					0.95	0.95	0.88
Frpb, ped/bikes		1.00	0.97	1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5085	1504	3467	3471					1715	1719	2682
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5085	1504	3467	3471					1715	1719	2682
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	901	607	559	934	0	0	0	0	408	1	408
RTOR Reduction (vph)	0	0	396	0	0	0	0	0	0	0	0	191
Lane Group Flow (vph)	0	901	211	559	934	0	0	0	0	204	205	217
Confl. Peds. (#/hr)	7		11	11		7	1					1
Confl. Bikes (#/hr)						3						1
Heavy Vehicles (%)	0%	2%	4%	1%	4%	0%	0%	0%	0%	0%	0%	6%
Turn Type		NA	Perm	Prot	NA					Split	NA	custom
Protected Phases		2		1	6					7	7	4
Permitted Phases			2									
Actuated Green, G (s)		37.5	37.5	27.5	69.5					31.5	31.5	31.5
Effective Green, g (s)		37.5	37.5	27.5	69.5					31.5	31.5	31.5
Actuated g/C Ratio		0.34	0.34	0.25	0.63					0.29	0.29	0.29
Clearance Time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Vehicle Extension (s)		4.9	4.9	2.3	4.9					2.3	2.3	2.3
Lane Grp Cap (vph)		1733	512	866	2193					491	492	768
v/s Ratio Prot		c0.18		c0.16	0.27					0.12	c0.12	0.08
v/s Ratio Perm			0.14									
v/c Ratio		0.52	0.41	0.65	0.43					0.42	0.42	0.28
Uniform Delay, d1		29.0	27.8	36.9	10.2					31.8	31.8	30.5
Progression Factor		0.68	0.66	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.8	1.8	3.7	0.6					2.6	2.6	0.1
Delay (s)		20.5	20.1	40.6	10.8					34.4	34.4	30.6
Level of Service		C	C	D	B					C	C	C
Approach Delay (s)		20.3			22.0			0.0			32.5	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	23.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Analysis – Existing + Stage II

HCM Signalized Intersection Capacity Analysis
1: Boones Ferry Rd & 95th Ave

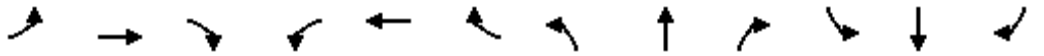


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	204	2	918	63	16	2	674	755	5	2	1083	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	0.88	1.00	1.00		0.97	0.95		1.00	0.95	1.00
Frpb, ped/bikes		1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85	1.00	0.98		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.95	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1737	2734	1805	1686		3183	3468		1805	3574	1497
Flt Permitted		0.72	1.00	0.42	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1304	2734	798	1686		3183	3468		1805	3574	1497
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	210	2	946	65	16	2	695	778	5	2	1116	180
RTOR Reduction (vph)	0	0	18	0	2	0	0	0	0	0	0	90
Lane Group Flow (vph)	0	212	928	65	16	0	695	783	0	2	1116	90
Confl. Peds. (#/hr)	2					2	3		1	1		3
Confl. Bikes (#/hr)			2						1			
Heavy Vehicles (%)	4%	0%	3%	0%	12%	0%	10%	4%	0%	0%	1%	5%
Turn Type	Perm	NA	pm+ov	Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		8	1		4		1	6		5	2	
Permitted Phases	8		8	4								2
Actuated Green, G (s)		21.7	49.8	21.7	21.7		28.1	70.1		1.2	43.2	43.2
Effective Green, g (s)		21.7	49.8	21.7	21.7		28.1	70.1		1.2	43.2	43.2
Actuated g/C Ratio		0.21	0.47	0.21	0.21		0.27	0.67		0.01	0.41	0.41
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		269	1400	164	348		851	2315		20	1470	615
v/s Ratio Prot			c0.18		0.01		c0.22	0.23		0.00	c0.31	
v/s Ratio Perm		c0.16	0.16	0.08								0.06
v/c Ratio		0.79	0.66	0.40	0.05		0.82	0.34		0.10	0.76	0.15
Uniform Delay, d1		39.5	21.2	36.0	33.4		36.0	7.5		51.4	26.4	19.4
Progression Factor		1.00	1.00	1.00	1.00		1.11	0.56		1.00	1.00	1.00
Incremental Delay, d2		14.1	1.2	1.6	0.1		6.3	0.3		2.2	2.3	0.1
Delay (s)		53.6	22.4	37.6	33.4		46.2	4.5		53.6	28.8	19.5
Level of Service		D	C	D	C		D	A		D	C	B
Approach Delay (s)		28.1			36.7			24.1			27.5	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

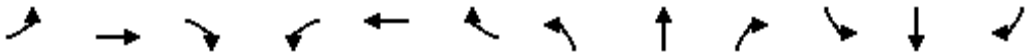
HCM Signalized Intersection Capacity Analysis
2: I-5 SB On Ramp/I-5 SB Off Ramp & Boones Ferry Road/Elligsen Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1160	904	0	727	406	0	0	0	549	0	707
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0				4.5	4.5	4.5
Lane Util. Factor		0.95	1.00		0.95	1.00				0.95	0.95	1.00
Frpb, ped/bikes		1.00	0.99		1.00	0.98				1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85				1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95	0.95	1.00
Satd. Flow (prot)		3539	1564		3471	1580				1649	1649	1495
Flt Permitted		1.00	1.00		1.00	1.00				0.95	0.95	1.00
Satd. Flow (perm)		3539	1564		3471	1580				1649	1649	1495
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1234	962	0	773	432	0	0	0	584	0	752
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	78
Lane Group Flow (vph)	0	1234	962	0	773	432	0	0	0	292	292	674
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			1			5						
Heavy Vehicles (%)	0%	2%	2%	0%	4%	0%	0%	0%	0%	4%	0%	8%
Turn Type		NA	Free		NA	Free				Split	NA	Prot
Protected Phases		2			6					4	4	4
Permitted Phases			Free			Free						
Actuated Green, G (s)		44.9	105.0		44.9	105.0				50.6	50.6	50.6
Effective Green, g (s)		45.9	105.0		45.9	105.0				50.6	50.6	50.6
Actuated g/C Ratio		0.44	1.00		0.44	1.00				0.48	0.48	0.48
Clearance Time (s)		5.0			5.0					4.5	4.5	4.5
Vehicle Extension (s)		3.0			3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1547	1564		1517	1580				794	794	720
v/s Ratio Prot		c0.35			0.22					0.18	0.18	c0.45
v/s Ratio Perm			0.62			0.27						
v/c Ratio		0.80	0.62		0.51	0.27				0.37	0.37	0.94
Uniform Delay, d1		25.5	0.0		21.4	0.0				17.1	17.1	25.7
Progression Factor		0.90	1.00		1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2		3.0	1.2		1.2	0.4				0.3	0.3	19.4
Delay (s)		26.1	1.2		22.6	0.4				17.4	17.4	45.0
Level of Service		C	A		C	A				B	B	D
Approach Delay (s)		15.2			14.7			0.0			33.0	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		

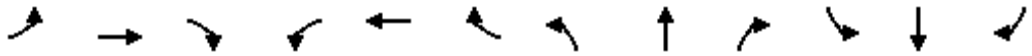
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	66	0	3	75	214	0	1	4	402	1	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97		0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.88		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1700	1900		1805	1900	1457		1655		1719	1338	
Flt Permitted	0.87	1.00		0.71	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (perm)	1556	1900		1347	1900	1457		1655		1719	1338	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	57	74	0	3	84	240	0	1	4	452	1	82
RTOR Reduction (vph)	0	0	0	0	0	195	0	4	0	0	51	0
Lane Group Flow (vph)	57	74	0	3	84	45	0	1	0	452	32	0
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)			1			2						7
Heavy Vehicles (%)	6%	0%	0%	0%	0%	8%	0%	0%	0%	5%	0%	18%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6		6						
Actuated Green, G (s)	11.0	4.6		22.0	11.1	11.1		0.9		22.2	22.2	
Effective Green, g (s)	11.0	4.6		22.0	11.1	11.1		0.9		22.2	22.2	
Actuated g/C Ratio	0.19	0.08		0.38	0.19	0.19		0.02		0.38	0.38	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)	2.5	3.0		2.5	3.0	3.0		2.5		2.5	2.5	
Lane Grp Cap (vph)	307	149		606	359	275		25		651	506	
v/s Ratio Prot	c0.02	c0.04		0.00	c0.04			c0.00		c0.26	0.02	
v/s Ratio Perm	0.01			0.00		0.03						
v/c Ratio	0.19	0.50		0.00	0.23	0.17		0.04		0.69	0.06	
Uniform Delay, d1	20.1	25.9		11.5	20.1	19.9		28.4		15.3	11.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.2	2.6		0.0	0.3	0.3		0.5		3.0	0.0	
Delay (s)	20.3	28.5		11.5	20.5	20.2		28.9		18.3	11.6	
Level of Service	C	C		B	C	C		C		B	B	
Approach Delay (s)		24.9			20.2			28.9			17.3	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	58.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

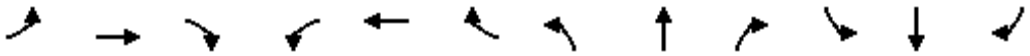


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	98	303	231	75	312	41	105	186	49	41	379	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.98		1.00	0.97		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	1729		1752	1794		1770	1788		1766	1782	
Flt Permitted	0.30	1.00		0.13	1.00		0.12	1.00		0.53	1.00	
Satd. Flow (perm)	559	1729		244	1794		216	1788		994	1782	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	109	337	257	83	347	46	117	207	54	46	421	227
RTOR Reduction (vph)	0	29	0	0	5	0	0	9	0	0	20	0
Lane Group Flow (vph)	109	565	0	83	388	0	117	252	0	46	628	0
Confl. Peds. (#/hr)	1		2	2		1			3	3		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	1%	2%	1%	3%	4%	2%	2%	2%	4%	2%	1%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	37.6	31.0		36.2	30.3		40.6	34.5		36.8	32.6	
Effective Green, g (s)	37.6	31.0		36.2	30.3		40.6	34.5		36.8	32.6	
Actuated g/C Ratio	0.41	0.33		0.39	0.33		0.44	0.37		0.40	0.35	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	314	578		191	587		197	666		430	627	
v/s Ratio Prot	0.02	c0.33		c0.03	0.22		c0.04	0.14		0.00	c0.35	
v/s Ratio Perm	0.12			0.14			0.22			0.04		
v/c Ratio	0.35	0.98		0.43	0.66		0.59	0.38		0.11	1.00	
Uniform Delay, d1	18.5	30.5		21.7	26.7		21.0	21.2		17.3	30.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	31.6		1.6	2.8		4.7	0.4		0.1	36.3	
Delay (s)	19.2	62.0		23.2	29.5		25.7	21.6		17.4	66.3	
Level of Service	B	E		C	C		C	C		B	E	
Approach Delay (s)		55.4			28.4			22.9			63.1	
Approach LOS		E			C			C			E	

Intersection Summary			
HCM 2000 Control Delay	46.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	92.6	Sum of lost time (s)	17.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5: Boones Ferry Rd & Wilsonville Rd

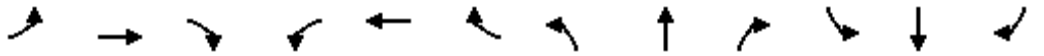


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	888	142	451	844	218	233	90	347	422	212	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.0		5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.91		0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1687	3100		3467	3600	1347	1805	4600	1599	4000	1808	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1687	3100		3467	3600	1347	1805	4600	1599	4000	1808	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	52	915	146	465	870	225	240	93	358	435	219	64
RTOR Reduction (vph)	0	18	0	0	0	70	0	0	46	0	10	0
Lane Group Flow (vph)	52	1043	0	465	870	155	240	93	312	435	273	0
Confl. Peds. (#/hr)	5		5	5		5	2					2
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	7%	3%	1%	1%	3%	16%	0%	1%	1%	3%	1%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	7.0	33.6		17.7	44.3	44.3	18.5	18.5	36.2	20.2	20.2	
Effective Green, g (s)	7.0	34.6		17.7	45.3	45.3	18.5	18.5	36.2	20.2	20.2	
Actuated g/C Ratio	0.06	0.31		0.16	0.41	0.41	0.17	0.17	0.33	0.18	0.18	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	0.5		2.5	4.3	4.3	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	107	975		557	1482	554	303	773	598	734	332	
v/s Ratio Prot	0.03	c0.34		c0.13	0.24		c0.13	0.02	0.08	0.11	c0.15	
v/s Ratio Perm						0.12			0.11			
v/c Ratio	0.49	1.07		0.83	0.59	0.28	0.79	0.12	0.52	0.59	0.82	
Uniform Delay, d1	49.8	37.7		44.7	25.1	21.5	43.9	38.8	29.9	41.1	43.2	
Progression Factor	1.00	1.00		1.21	0.79	0.63	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.5	49.4		9.2	1.5	1.1	12.8	0.1	0.6	1.1	14.8	
Delay (s)	52.3	87.1		63.4	21.3	14.7	56.7	38.9	30.5	42.2	58.0	
Level of Service	D	F		E	C	B	E	D	C	D	E	
Approach Delay (s)		85.5			32.9			40.7			48.4	
Approach LOS		F			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	51.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
6: I-5 SB & Wilsonville Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	986	671	557	1039	0	0	0	0	408	1	477
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Lane Util. Factor		0.91	1.00	0.97	0.95					0.95	0.95	0.88
Frpb, ped/bikes		1.00	0.97	1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5085	1504	3467	3471					1715	1719	2682
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5085	1504	3467	3471					1715	1719	2682
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1006	685	568	1060	0	0	0	0	416	1	487
RTOR Reduction (vph)	0	0	395	0	0	0	0	0	0	0	0	145
Lane Group Flow (vph)	0	1006	290	568	1060	0	0	0	0	208	209	342
Confl. Peds. (#/hr)	7		11	11		7	1					1
Confl. Bikes (#/hr)						3						1
Heavy Vehicles (%)	0%	2%	4%	1%	4%	0%	0%	0%	0%	0%	0%	6%
Turn Type		NA	Perm	Prot	NA					Split	NA	custom
Protected Phases		2		1	6					7	7	4
Permitted Phases			2									
Actuated Green, G (s)		37.5	37.5	27.5	69.5					31.5	31.5	31.5
Effective Green, g (s)		37.5	37.5	27.5	69.5					31.5	31.5	31.5
Actuated g/C Ratio		0.34	0.34	0.25	0.63					0.29	0.29	0.29
Clearance Time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Vehicle Extension (s)		4.9	4.9	2.3	4.9					2.3	2.3	2.3
Lane Grp Cap (vph)		1733	512	866	2193					491	492	768
v/s Ratio Prot		c0.20		c0.16	0.31					0.12	0.12	c0.13
v/s Ratio Perm			0.19									
v/c Ratio		0.58	0.57	0.66	0.48					0.42	0.42	0.45
Uniform Delay, d1		29.8	29.6	37.0	10.7					31.9	31.9	32.1
Progression Factor		0.61	0.68	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.8	2.5	3.9	0.8					2.7	2.7	0.2
Delay (s)		18.8	22.6	40.9	11.5					34.5	34.6	32.3
Level of Service		B	C	D	B					C	C	C
Approach Delay (s)		20.3			21.7			0.0			33.4	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	23.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		

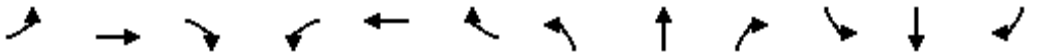
c Critical Lane Group

HCM Analysis – Existing + Project Phase 1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	203	2	872	63	16	2	609	754	5	2	1082	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	0.88	1.00	1.00		0.97	0.95		1.00	0.95	1.00
Frpb, ped/bikes		1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85	1.00	0.98		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.95	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1737	2734	1805	1686		3183	3468		1805	3574	1497
Flt Permitted		0.72	1.00	0.42	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1304	2734	800	1686		3183	3468		1805	3574	1497
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	209	2	899	65	16	2	628	777	5	2	1115	180
RTOR Reduction (vph)	0	0	18	0	2	0	0	0	0	0	0	90
Lane Group Flow (vph)	0	211	881	65	16	0	628	782	0	2	1115	90
Confl. Peds. (#/hr)	2					2	3		1	1		3
Confl. Bikes (#/hr)			2						1			
Heavy Vehicles (%)	4%	0%	3%	0%	12%	0%	10%	4%	0%	0%	1%	5%
Turn Type	Perm	NA	pm+ov	Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		8	1		4		1	6		5	2	
Permitted Phases	8		8	4								2
Actuated Green, G (s)		21.6	49.8	21.6	21.6		28.2	70.2		1.2	43.2	43.2
Effective Green, g (s)		21.6	49.8	21.6	21.6		28.2	70.2		1.2	43.2	43.2
Actuated g/C Ratio		0.21	0.47	0.21	0.21		0.27	0.67		0.01	0.41	0.41
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		268	1400	164	346		854	2318		20	1470	615
v/s Ratio Prot			c0.17		0.01		c0.20	0.23		0.00	c0.31	
v/s Ratio Perm		c0.16	0.15	0.08								0.06
v/c Ratio		0.79	0.63	0.40	0.05		0.74	0.34		0.10	0.76	0.15
Uniform Delay, d1		39.5	20.7	36.1	33.4		35.0	7.4		51.4	26.4	19.4
Progression Factor		1.00	1.00	1.00	1.00		1.11	0.60		1.00	1.00	1.00
Incremental Delay, d2		14.1	0.9	1.6	0.1		4.2	0.3		2.2	2.3	0.1
Delay (s)		53.6	21.6	37.6	33.5		43.1	4.8		53.6	28.7	19.5
Level of Service		D	C	D	C		D	A		D	C	B
Approach Delay (s)		27.7			36.7			21.8			27.5	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		

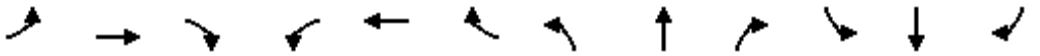
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1116	901	0	723	406	0	0	0	548	0	645
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0				4.5	4.5	4.5
Lane Util. Factor		0.95	1.00		0.95	1.00				0.95	0.95	1.00
Frpb, ped/bikes		1.00	0.99		1.00	0.98				1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85				1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95	0.95	1.00
Satd. Flow (prot)		3539	1564		3471	1580				1649	1649	1495
Flt Permitted		1.00	1.00		1.00	1.00				0.95	0.95	1.00
Satd. Flow (perm)		3539	1564		3471	1580				1649	1649	1495
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1187	959	0	769	432	0	0	0	583	0	686
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	85
Lane Group Flow (vph)	0	1187	959	0	769	432	0	0	0	291	292	601
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			1			5						
Heavy Vehicles (%)	0%	2%	2%	0%	4%	0%	0%	0%	0%	4%	0%	8%
Turn Type		NA	Free		NA	Free				Split	NA	Prot
Protected Phases		2			6					4	4	4
Permitted Phases			Free			Free						
Actuated Green, G (s)		49.0	105.0		49.0	105.0				46.5	46.5	46.5
Effective Green, g (s)		50.0	105.0		50.0	105.0				46.5	46.5	46.5
Actuated g/C Ratio		0.48	1.00		0.48	1.00				0.44	0.44	0.44
Clearance Time (s)		5.0			5.0					4.5	4.5	4.5
Vehicle Extension (s)		3.0			3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1685	1564		1652	1580				730	730	662
v/s Ratio Prot		c0.34			0.22					0.18	0.18	c0.40
v/s Ratio Perm			0.61			0.27						
v/c Ratio		0.70	0.61		0.47	0.27				0.40	0.40	0.91
Uniform Delay, d1		21.7	0.0		18.5	0.0				19.8	19.8	27.2
Progression Factor		0.86	1.00		1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2		1.8	1.3		0.9	0.4				0.4	0.4	16.1
Delay (s)		20.4	1.3		19.5	0.4				20.1	20.2	43.4
Level of Service		C	A		B	A				C	C	D
Approach Delay (s)		11.8			12.6			0.0			32.7	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

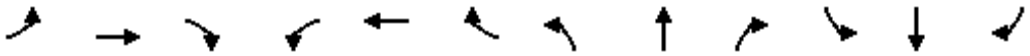
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	47	0	3	25	200	0	1	4	388	1	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.88		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1700	1900		1805	1900	1458		1655		1719	1350	
Flt Permitted	0.95	1.00		0.72	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (perm)	1704	1900		1373	1900	1458		1655		1719	1350	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	40	53	0	3	28	225	0	1	4	436	1	26
RTOR Reduction (vph)	0	0	0	0	0	172	0	4	0	0	16	0
Lane Group Flow (vph)	40	53	0	3	28	53	0	1	0	436	11	0
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)			1			2						7
Heavy Vehicles (%)	6%	0%	0%	0%	0%	8%	0%	0%	0%	5%	0%	18%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6		6						
Actuated Green, G (s)	8.2	4.2		22.4	13.9	13.9		0.9		22.1	22.1	
Effective Green, g (s)	8.2	4.2		22.4	13.9	13.9		0.9		22.1	22.1	
Actuated g/C Ratio	0.14	0.07		0.38	0.24	0.24		0.02		0.38	0.38	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)	2.5	3.0		2.5	3.0	3.0		2.5		2.5	2.5	
Lane Grp Cap (vph)	236	135		622	448	344		25		644	506	
v/s Ratio Prot	c0.01	c0.03		0.00	0.01			c0.00		c0.25	0.01	
v/s Ratio Perm	0.01			0.00		c0.04						
v/c Ratio	0.17	0.39		0.00	0.06	0.15		0.04		0.68	0.02	
Uniform Delay, d1	22.3	26.1		11.3	17.4	17.8		28.6		15.4	11.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.2	1.9		0.0	0.1	0.2		0.5		2.6	0.0	
Delay (s)	22.6	28.0		11.3	17.5	18.1		29.1		18.0	11.6	
Level of Service	C	C		B	B	B		C		B	B	
Approach Delay (s)		25.7			17.9			29.1			17.6	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	58.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	83	274	229	73	263	41	103	184	46	41	376	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.98		1.00	0.97		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	1723		1752	1789		1770	1791		1766	1790	
Flt Permitted	0.36	1.00		0.14	1.00		0.11	1.00		0.55	1.00	
Satd. Flow (perm)	680	1723		254	1789		214	1791		1015	1790	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	92	304	254	81	292	46	114	204	51	46	418	199
RTOR Reduction (vph)	0	32	0	0	6	0	0	9	0	0	17	0
Lane Group Flow (vph)	92	526	0	81	332	0	114	246	0	46	600	0
Confl. Peds. (#/hr)	1		2	2		1			3	3		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	1%	2%	1%	3%	4%	2%	2%	2%	4%	2%	1%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	35.9	29.6		34.9	29.1		40.8	34.8		37.2	33.0	
Effective Green, g (s)	35.9	29.6		34.9	29.1		40.8	34.8		37.2	33.0	
Actuated g/C Ratio	0.39	0.32		0.38	0.32		0.45	0.38		0.41	0.36	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	343	557		192	569		197	681		447	646	
v/s Ratio Prot	0.02	c0.31		c0.03	0.19		c0.04	0.14		0.00	c0.34	
v/s Ratio Perm	0.09			0.13			0.22			0.04		
v/c Ratio	0.27	0.94		0.42	0.58		0.58	0.36		0.10	0.93	
Uniform Delay, d1	18.4	30.1		21.4	26.1		19.7	20.3		16.6	28.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	24.9		1.5	1.5		4.1	0.3		0.1	19.6	
Delay (s)	18.8	55.0		22.9	27.6		23.8	20.7		16.7	47.7	
Level of Service	B	E		C	C		C	C		B	D	
Approach Delay (s)		49.9			26.7			21.6			45.5	
Approach LOS		D			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	38.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	91.4	Sum of lost time (s)	17.0
Intersection Capacity Utilization	83.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	741	103	449	664	207	166	88	344	406	208	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.0		5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.91		0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1687	3100		3467	3600	1348	1805	4600	1599	4000	1809	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1687	3100		3467	3600	1348	1805	4600	1599	4000	1809	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	46	764	106	463	685	213	171	91	355	419	214	61
RTOR Reduction (vph)	0	15	0	0	0	80	0	0	48	0	10	0
Lane Group Flow (vph)	46	855	0	463	685	133	171	91	307	419	265	0
Confl. Peds. (#/hr)	5		5	5		5	2					2
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	7%	3%	1%	1%	3%	16%	0%	1%	1%	3%	1%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	7.0	36.4		18.6	48.0	48.0	15.2	15.2	33.8	19.8	19.8	
Effective Green, g (s)	7.0	37.4		18.6	49.0	49.0	15.2	15.2	33.8	19.8	19.8	
Actuated g/C Ratio	0.06	0.34		0.17	0.45	0.45	0.14	0.14	0.31	0.18	0.18	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	0.5		2.5	4.3	4.3	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	107	1054		586	1603	600	249	635	564	720	325	
v/s Ratio Prot	0.03	c0.28		c0.13	0.19		c0.09	0.02	0.09	0.10	c0.15	
v/s Ratio Perm						0.10			0.10			
v/c Ratio	0.43	0.81		0.79	0.43	0.22	0.69	0.14	0.54	0.58	0.82	
Uniform Delay, d1	49.6	33.1		43.8	20.9	18.8	45.1	41.7	31.7	41.3	43.3	
Progression Factor	1.00	1.00		1.25	0.80	0.61	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.0	6.8		6.4	0.8	0.8	7.0	0.1	0.9	1.0	14.2	
Delay (s)	51.6	39.9		61.2	17.6	12.2	52.1	41.8	32.5	42.3	57.6	
Level of Service	D	D		E	B	B	D	D	C	D	E	
Approach Delay (s)		40.5			31.6			39.3			48.3	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	38.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

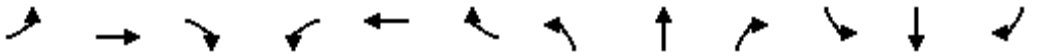
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	883	608	548	923	0	0	0	0	400	1	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Lane Util. Factor		0.91	1.00	0.97	0.95					0.95	0.95	0.88
Frpb, ped/bikes		1.00	0.97	1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5085	1504	3467	3471					1715	1719	2682
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5085	1504	3467	3471					1715	1719	2682
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	901	620	559	942	0	0	0	0	408	1	408
RTOR Reduction (vph)	0	0	396	0	0	0	0	0	0	0	0	187
Lane Group Flow (vph)	0	901	224	559	942	0	0	0	0	204	205	221
Confl. Peds. (#/hr)	7		11	11		7	1					1
Confl. Bikes (#/hr)						3						1
Heavy Vehicles (%)	0%	2%	4%	1%	4%	0%	0%	0%	0%	0%	0%	6%
Turn Type		NA	Perm	Prot	NA					Split	NA	custom
Protected Phases		2		1	6					7	7	4
Permitted Phases			2									
Actuated Green, G (s)		37.5	37.5	27.5	69.5					31.5	31.5	31.5
Effective Green, g (s)		37.5	37.5	27.5	69.5					31.5	31.5	31.5
Actuated g/C Ratio		0.34	0.34	0.25	0.63					0.29	0.29	0.29
Clearance Time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Vehicle Extension (s)		4.9	4.9	2.3	4.9					2.3	2.3	2.3
Lane Grp Cap (vph)		1733	512	866	2193					491	492	768
v/s Ratio Prot		c0.18		c0.16	0.27					0.12	c0.12	0.08
v/s Ratio Perm			0.15									
v/c Ratio		0.52	0.44	0.65	0.43					0.42	0.42	0.29
Uniform Delay, d1		29.0	28.1	36.9	10.2					31.8	31.8	30.5
Progression Factor		0.67	0.64	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.8	2.0	3.7	0.6					2.6	2.6	0.1
Delay (s)		20.3	19.8	40.6	10.8					34.4	34.4	30.6
Level of Service		C	B	D	B					C	C	C
Approach Delay (s)		20.1			21.9			0.0			32.5	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

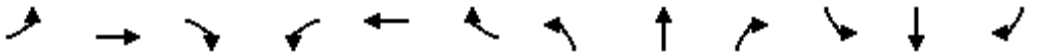
HCM Analysis – Existing + Project Phase 1 + Stage II



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	207	2	935	63	16	2	684	755	5	2	1083	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	0.88	1.00	1.00		0.97	0.95		1.00	0.95	1.00
Frpb, ped/bikes		1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85	1.00	0.98		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.95	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1737	2734	1805	1686		3183	3468		1805	3574	1497
Flt Permitted		0.72	1.00	0.42	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1304	2734	789	1686		3183	3468		1805	3574	1497
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	213	2	964	65	16	2	705	778	5	2	1116	182
RTOR Reduction (vph)	0	0	18	0	2	0	0	0	0	0	0	91
Lane Group Flow (vph)	0	215	946	65	16	0	705	783	0	2	1116	91
Confl. Peds. (#/hr)	2					2	3		1	1		3
Confl. Bikes (#/hr)			2						1			
Heavy Vehicles (%)	4%	0%	3%	0%	12%	0%	10%	4%	0%	0%	1%	5%
Turn Type	Perm	NA	pm+ov	Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		8	1		4		1	6		5	2	
Permitted Phases	8		8	4								2
Actuated Green, G (s)		21.8	49.9	21.8	21.8		28.1	70.0		1.2	43.1	43.1
Effective Green, g (s)		21.8	49.9	21.8	21.8		28.1	70.0		1.2	43.1	43.1
Actuated g/C Ratio		0.21	0.48	0.21	0.21		0.27	0.67		0.01	0.41	0.41
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		270	1403	163	350		851	2312		20	1467	614
v/s Ratio Prot			c0.18		0.01		c0.22	0.23		0.00	c0.31	
v/s Ratio Perm		c0.16	0.17	0.08								0.06
v/c Ratio		0.80	0.67	0.40	0.05		0.83	0.34		0.10	0.76	0.15
Uniform Delay, d1		39.5	21.3	35.9	33.3		36.2	7.5		51.4	26.5	19.4
Progression Factor		1.00	1.00	1.00	1.00		1.10	0.56		1.00	1.00	1.00
Incremental Delay, d2		14.9	1.3	1.6	0.1		6.6	0.3		2.2	2.4	0.1
Delay (s)		54.4	22.6	37.5	33.3		46.6	4.5		53.6	28.9	19.5
Level of Service		D	C	D	C		D	A		D	C	B
Approach Delay (s)		28.4			36.6			24.4			27.6	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		

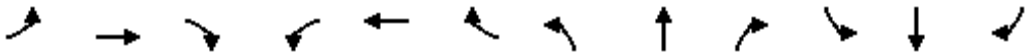
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1177	904	0	727	406	0	0	0	549	0	717
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0				4.5	4.5	4.5
Lane Util. Factor		0.95	1.00		0.95	1.00				0.95	0.95	1.00
Frpb, ped/bikes		1.00	0.99		1.00	0.98				1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85				1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95	0.95	1.00
Satd. Flow (prot)		3539	1564		3471	1580				1649	1649	1495
Flt Permitted		1.00	1.00		1.00	1.00				0.95	0.95	1.00
Satd. Flow (perm)		3539	1564		3471	1580				1649	1649	1495
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1252	962	0	773	432	0	0	0	584	0	763
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	79
Lane Group Flow (vph)	0	1252	962	0	773	432	0	0	0	292	292	684
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			1			5						
Heavy Vehicles (%)	0%	2%	2%	0%	4%	0%	0%	0%	0%	4%	0%	8%
Turn Type		NA	Free		NA	Free				Split	NA	Prot
Protected Phases		2			6					4	4	4
Permitted Phases			Free			Free						
Actuated Green, G (s)		45.4	105.0		45.4	105.0				50.1	50.1	50.1
Effective Green, g (s)		46.4	105.0		46.4	105.0				50.1	50.1	50.1
Actuated g/C Ratio		0.44	1.00		0.44	1.00				0.48	0.48	0.48
Clearance Time (s)		5.0			5.0					4.5	4.5	4.5
Vehicle Extension (s)		3.0			3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1563	1564		1533	1580				786	786	713
v/s Ratio Prot		c0.35			0.22					0.18	0.18	c0.46
v/s Ratio Perm			0.62			0.27						
v/c Ratio		0.80	0.62		0.50	0.27				0.37	0.37	0.96
Uniform Delay, d1		25.3	0.0		21.0	0.0				17.4	17.4	26.5
Progression Factor		0.92	1.00		1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2		3.0	1.2		1.2	0.4				0.3	0.3	23.8
Delay (s)		26.2	1.2		22.2	0.4				17.7	17.7	50.3
Level of Service		C	A		C	A				B	B	D
Approach Delay (s)		15.4			14.4			0.0			36.2	
Approach LOS		B			B			A			D	

Intersection Summary			
HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		

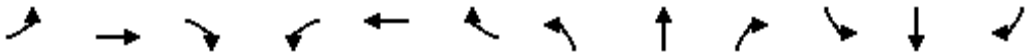
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	71	84	0	3	85	214	0	1	4	402	1	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97		0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.88		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1701	1900		1805	1900	1458		1655		1719	1336	
Flt Permitted	0.69	1.00		0.70	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (perm)	1244	1900		1323	1900	1458		1655		1719	1336	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	80	94	0	3	96	240	0	1	4	452	1	96
RTOR Reduction (vph)	0	0	0	0	0	187	0	4	0	0	62	0
Lane Group Flow (vph)	80	94	0	3	96	53	0	1	0	452	35	0
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)			1			2						7
Heavy Vehicles (%)	6%	0%	0%	0%	0%	8%	0%	0%	0%	5%	0%	18%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6		6						
Actuated Green, G (s)	13.6	6.7		24.9	13.5	13.5		0.9		22.0	22.0	
Effective Green, g (s)	13.6	6.7		24.9	13.5	13.5		0.9		22.0	22.0	
Actuated g/C Ratio	0.22	0.11		0.41	0.22	0.22		0.01		0.36	0.36	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)	2.5	3.0		2.5	3.0	3.0		2.5		2.5	2.5	
Lane Grp Cap (vph)	327	207		645	418	321		24		616	479	
v/s Ratio Prot	c0.03	c0.05		0.00	c0.05			c0.00		c0.26	0.03	
v/s Ratio Perm	0.03			0.00		0.04						
v/c Ratio	0.24	0.45		0.00	0.23	0.16		0.04		0.73	0.07	
Uniform Delay, d1	19.8	25.6		10.8	19.6	19.3		29.8		17.1	12.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.3	1.6		0.0	0.3	0.2		0.6		4.3	0.0	
Delay (s)	20.1	27.2		10.8	19.9	19.6		30.3		21.4	13.0	
Level of Service	C	C		B	B	B		C		C	B	
Approach Delay (s)		23.9			19.6			30.3			19.9	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	61.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	98	321	231	75	322	41	105	186	49	41	379	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.98		1.00	0.97		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	1734		1752	1795		1770	1788		1766	1782	
Flt Permitted	0.28	1.00		0.13	1.00		0.12	1.00		0.53	1.00	
Satd. Flow (perm)	534	1734		244	1795		216	1788		994	1782	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	109	357	257	83	358	46	117	207	54	46	421	227
RTOR Reduction (vph)	0	27	0	0	5	0	0	9	0	0	20	0
Lane Group Flow (vph)	109	587	0	83	399	0	117	252	0	46	628	0
Confl. Peds. (#/hr)	1		2	2		1			3	3		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	1%	2%	1%	3%	4%	2%	2%	2%	4%	2%	1%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	37.6	31.0		36.2	30.3		40.6	34.5		36.8	32.6	
Effective Green, g (s)	37.6	31.0		36.2	30.3		40.6	34.5		36.8	32.6	
Actuated g/C Ratio	0.41	0.33		0.39	0.33		0.44	0.37		0.40	0.35	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	306	580		191	587		197	666		430	627	
v/s Ratio Prot	0.03	c0.34		c0.03	0.22		c0.04	0.14		0.00	c0.35	
v/s Ratio Perm	0.12			0.14			0.22			0.04		
v/c Ratio	0.36	1.01		0.43	0.68		0.59	0.38		0.11	1.00	
Uniform Delay, d1	18.6	30.8		21.9	27.0		21.0	21.2		17.3	30.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	40.6		1.6	3.2		4.7	0.4		0.1	36.3	
Delay (s)	19.3	71.4		23.5	30.2		25.7	21.6		17.4	66.3	
Level of Service	B	E		C	C		C	C		B	E	
Approach Delay (s)		63.5			29.1			22.9			63.1	
Approach LOS		E			C			C			E	

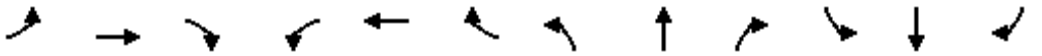
Intersection Summary			
HCM 2000 Control Delay	49.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	92.6	Sum of lost time (s)	17.0
Intersection Capacity Utilization	87.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	901	142	451	852	218	233	90	347	422	212	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.0		5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.91		0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1687	3100		3467	3600	1347	1805	4600	1599	4000	1808	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1687	3100		3467	3600	1347	1805	4600	1599	4000	1808	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	52	929	146	465	878	225	240	93	358	435	219	64
RTOR Reduction (vph)	0	18	0	0	0	70	0	0	46	0	10	0
Lane Group Flow (vph)	52	1057	0	465	878	155	240	93	312	435	273	0
Confl. Peds. (#/hr)	5		5	5		5	2					2
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	7%	3%	1%	1%	3%	16%	0%	1%	1%	3%	1%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	7.0	33.6		17.7	44.3	44.3	18.5	18.5	36.2	20.2	20.2	
Effective Green, g (s)	7.0	34.6		17.7	45.3	45.3	18.5	18.5	36.2	20.2	20.2	
Actuated g/C Ratio	0.06	0.31		0.16	0.41	0.41	0.17	0.17	0.33	0.18	0.18	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	0.5		2.5	4.3	4.3	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	107	975		557	1482	554	303	773	598	734	332	
v/s Ratio Prot	0.03	c0.34		c0.13	0.24		c0.13	0.02	0.08	0.11	c0.15	
v/s Ratio Perm						0.12			0.11			
v/c Ratio	0.49	1.08		0.83	0.59	0.28	0.79	0.12	0.52	0.59	0.82	
Uniform Delay, d1	49.8	37.7		44.7	25.2	21.5	43.9	38.8	29.9	41.1	43.2	
Progression Factor	1.00	1.00		1.21	0.79	0.63	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.5	54.5		9.1	1.5	1.1	12.8	0.1	0.6	1.1	14.8	
Delay (s)	52.3	92.2		63.3	21.3	14.6	56.7	38.9	30.5	42.2	58.0	
Level of Service	D	F		E	C	B	E	D	C	D	E	
Approach Delay (s)		90.3			32.8			40.7			48.4	
Approach LOS		F			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	52.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	986	684	557	1047	0	0	0	0	408	1	477
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Lane Util. Factor		0.91	1.00	0.97	0.95					0.95	0.95	0.88
Frpb, ped/bikes		1.00	0.97	1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5085	1504	3467	3471					1715	1719	2682
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5085	1504	3467	3471					1715	1719	2682
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1006	698	568	1068	0	0	0	0	416	1	487
RTOR Reduction (vph)	0	0	395	0	0	0	0	0	0	0	0	142
Lane Group Flow (vph)	0	1006	303	568	1068	0	0	0	0	208	209	345
Confl. Peds. (#/hr)	7		11	11		7	1					1
Confl. Bikes (#/hr)						3						1
Heavy Vehicles (%)	0%	2%	4%	1%	4%	0%	0%	0%	0%	0%	0%	6%
Turn Type		NA	Perm	Prot	NA					Split	NA	custom
Protected Phases		2		1	6					7	7	4
Permitted Phases			2									
Actuated Green, G (s)		37.5	37.5	27.5	69.5					31.5	31.5	31.5
Effective Green, g (s)		37.5	37.5	27.5	69.5					31.5	31.5	31.5
Actuated g/C Ratio		0.34	0.34	0.25	0.63					0.29	0.29	0.29
Clearance Time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Vehicle Extension (s)		4.9	4.9	2.3	4.9					2.3	2.3	2.3
Lane Grp Cap (vph)		1733	512	866	2193					491	492	768
v/s Ratio Prot		0.20		c0.16	0.31					0.12	0.12	c0.13
v/s Ratio Perm			c0.20									
v/c Ratio		0.58	0.59	0.66	0.49					0.42	0.42	0.45
Uniform Delay, d1		29.8	29.9	37.0	10.8					31.9	31.9	32.1
Progression Factor		0.60	0.71	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.8	2.6	3.9	0.8					2.7	2.7	0.2
Delay (s)		18.6	23.8	40.9	11.5					34.5	34.6	32.4
Level of Service		B	C	D	B					C	C	C
Approach Delay (s)		20.8			21.7			0.0			33.4	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	23.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	82.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

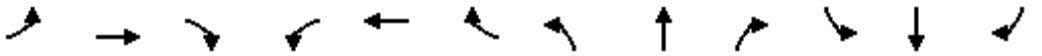
HCM Analysis – Existing + Project Phase 2

DKS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	205	2	880	63	16	2	615	754	5	2	1082	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	0.88	1.00	1.00		0.97	0.95		1.00	0.95	1.00
Frpb, ped/bikes		1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85	1.00	0.98		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.95	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1737	2734	1805	1686		3183	3468		1805	3574	1497
Flt Permitted		0.72	1.00	0.42	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1304	2734	794	1686		3183	3468		1805	3574	1497
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	211	2	907	65	16	2	634	777	5	2	1115	181
RTOR Reduction (vph)	0	0	18	0	2	0	0	0	0	0	0	91
Lane Group Flow (vph)	0	213	889	65	16	0	634	782	0	2	1115	90
Confl. Peds. (#/hr)	2					2	3		1	1		3
Confl. Bikes (#/hr)			2						1			
Heavy Vehicles (%)	4%	0%	3%	0%	12%	0%	10%	4%	0%	0%	1%	5%
Turn Type	Perm	NA	pm+ov	Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		8	1		4		1	6		5	2	
Permitted Phases	8		8	4								2
Actuated Green, G (s)		21.7	49.9	21.7	21.7		28.2	70.1		1.2	43.1	43.1
Effective Green, g (s)		21.7	49.9	21.7	21.7		28.2	70.1		1.2	43.1	43.1
Actuated g/C Ratio		0.21	0.48	0.21	0.21		0.27	0.67		0.01	0.41	0.41
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		269	1403	164	348		854	2315		20	1467	614
v/s Ratio Prot			c0.17		0.01		c0.20	0.23		0.00	c0.31	
v/s Ratio Perm		c0.16	0.15	0.08								0.06
v/c Ratio		0.79	0.63	0.40	0.05		0.74	0.34		0.10	0.76	0.15
Uniform Delay, d1		39.5	20.7	36.0	33.4		35.1	7.5		51.4	26.5	19.4
Progression Factor		1.00	1.00	1.00	1.00		1.14	0.60		1.00	1.00	1.00
Incremental Delay, d2		14.7	0.9	1.6	0.1		4.4	0.3		2.2	2.4	0.1
Delay (s)		54.2	21.6	37.6	33.4		44.2	4.8		53.6	28.9	19.5
Level of Service		D	C	D	C		D	A		D	C	B
Approach Delay (s)		27.8			36.7			22.4			27.6	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

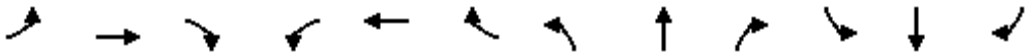
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1124	901	0	723	406	0	0	0	548	0	651
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0				4.5	4.5	4.5
Lane Util. Factor		0.95	1.00		0.95	1.00				0.95	0.95	1.00
Frpb, ped/bikes		1.00	0.99		1.00	0.98				1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85				1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95	0.95	1.00
Satd. Flow (prot)		3539	1564		3471	1580				1649	1649	1495
Flt Permitted		1.00	1.00		1.00	1.00				0.95	0.95	1.00
Satd. Flow (perm)		3539	1564		3471	1580				1649	1649	1495
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1196	959	0	769	432	0	0	0	583	0	693
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	84
Lane Group Flow (vph)	0	1196	959	0	769	432	0	0	0	291	292	609
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			1			5						
Heavy Vehicles (%)	0%	2%	2%	0%	4%	0%	0%	0%	0%	4%	0%	8%
Turn Type		NA	Free		NA	Free				Split	NA	Prot
Protected Phases		2			6					4	4	4
Permitted Phases			Free			Free						
Actuated Green, G (s)		48.3	105.0		48.3	105.0				47.2	47.2	47.2
Effective Green, g (s)		49.3	105.0		49.3	105.0				47.2	47.2	47.2
Actuated g/C Ratio		0.47	1.00		0.47	1.00				0.45	0.45	0.45
Clearance Time (s)		5.0			5.0					4.5	4.5	4.5
Vehicle Extension (s)		3.0			3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1661	1564		1629	1580				741	741	672
v/s Ratio Prot		c0.34			0.22					0.18	0.18	c0.41
v/s Ratio Perm			0.61			0.27						
v/c Ratio		0.72	0.61		0.47	0.27				0.39	0.39	0.91
Uniform Delay, d1		22.3	0.0		19.0	0.0				19.3	19.3	26.8
Progression Factor		0.87	1.00		1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2		1.9	1.3		1.0	0.4				0.3	0.3	15.8
Delay (s)		21.2	1.3		20.0	0.4				19.7	19.7	42.6
Level of Service		C	A		B	A				B	B	D
Approach Delay (s)		12.3			12.9			0.0			32.1	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

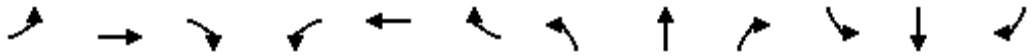
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	46	54	0	3	31	200	0	1	4	388	1	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.88		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1700	1900		1805	1900	1458		1655		1719	1345	
Flt Permitted	0.91	1.00		0.72	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (perm)	1627	1900		1363	1900	1458		1655		1719	1345	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	52	61	0	3	35	225	0	1	4	436	1	34
RTOR Reduction (vph)	0	0	0	0	0	172	0	4	0	0	21	0
Lane Group Flow (vph)	52	61	0	3	35	53	0	1	0	436	14	0
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)			1			2						7
Heavy Vehicles (%)	6%	0%	0%	0%	0%	8%	0%	0%	0%	5%	0%	18%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6		6						
Actuated Green, G (s)	8.5	4.4		22.6	14.0	14.0		0.9		22.1	22.1	
Effective Green, g (s)	8.5	4.4		22.6	14.0	14.0		0.9		22.1	22.1	
Actuated g/C Ratio	0.14	0.07		0.38	0.24	0.24		0.02		0.37	0.37	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)	2.5	3.0		2.5	3.0	3.0		2.5		2.5	2.5	
Lane Grp Cap (vph)	239	141		623	450	345		25		642	502	
v/s Ratio Prot	c0.02	c0.03		0.00	0.02			c0.00		c0.25	0.01	
v/s Ratio Perm	0.02			0.00		c0.04						
v/c Ratio	0.22	0.43		0.00	0.08	0.15		0.04		0.68	0.03	
Uniform Delay, d1	22.4	26.2		11.3	17.5	17.9		28.7		15.5	11.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.3	2.1		0.0	0.1	0.2		0.5		2.6	0.0	
Delay (s)	22.7	28.3		11.3	17.6	18.1		29.2		18.1	11.7	
Level of Service	C	C		B	B	B		C		B	B	
Approach Delay (s)		25.7			17.9			29.2			17.6	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	18.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	59.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	83	281	229	73	269	41	103	184	46	41	376	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.98		1.00	0.97		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	1725		1752	1790		1770	1790		1766	1790	
Flt Permitted	0.36	1.00		0.14	1.00		0.12	1.00		0.54	1.00	
Satd. Flow (perm)	670	1725		249	1790		215	1790		1012	1790	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	92	312	254	81	299	46	114	204	51	46	418	199
RTOR Reduction (vph)	0	30	0	0	5	0	0	9	0	0	17	0
Lane Group Flow (vph)	92	536	0	81	340	0	114	246	0	46	600	0
Confl. Peds. (#/hr)	1		2	2		1			3	3		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	1%	2%	1%	3%	4%	2%	2%	2%	4%	2%	1%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	36.4	30.1		35.4	29.6		40.7	34.7		37.1	32.9	
Effective Green, g (s)	36.4	30.1		35.4	29.6		40.7	34.7		37.1	32.9	
Actuated g/C Ratio	0.40	0.33		0.39	0.32		0.44	0.38		0.40	0.36	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	342	565		190	577		196	676		443	641	
v/s Ratio Prot	0.02	c0.31		c0.03	0.19		c0.04	0.14		0.00	c0.33	
v/s Ratio Perm	0.09			0.14			0.22			0.04		
v/c Ratio	0.27	0.95		0.43	0.59		0.58	0.36		0.10	0.94	
Uniform Delay, d1	18.3	30.1		21.3	26.0		20.0	20.6		16.8	28.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	25.3		1.5	1.5		4.3	0.3		0.1	21.0	
Delay (s)	18.7	55.4		22.9	27.5		24.3	20.9		16.9	49.4	
Level of Service	B	E		C	C		C	C		B	D	
Approach Delay (s)		50.3			26.7			22.0			47.2	
Approach LOS		D			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	39.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	91.8	Sum of lost time (s)	17.0
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	748	103	449	669	207	166	88	344	406	208	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.0		5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.91		0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1687	3100		3467	3600	1348	1805	4600	1599	4000	1809	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1687	3100		3467	3600	1348	1805	4600	1599	4000	1809	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	46	771	106	463	690	213	171	91	355	419	214	61
RTOR Reduction (vph)	0	15	0	0	0	79	0	0	48	0	10	0
Lane Group Flow (vph)	46	862	0	463	690	134	171	91	307	419	265	0
Confl. Peds. (#/hr)	5		5	5		5	2					2
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	7%	3%	1%	1%	3%	16%	0%	1%	1%	3%	1%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	7.0	36.4		18.6	48.0	48.0	15.2	15.2	33.8	19.8	19.8	
Effective Green, g (s)	7.0	37.4		18.6	49.0	49.0	15.2	15.2	33.8	19.8	19.8	
Actuated g/C Ratio	0.06	0.34		0.17	0.45	0.45	0.14	0.14	0.31	0.18	0.18	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	0.5		2.5	4.3	4.3	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	107	1054		586	1603	600	249	635	564	720	325	
v/s Ratio Prot	0.03	c0.28		c0.13	0.19		c0.09	0.02	0.09	0.10	c0.15	
v/s Ratio Perm						0.10			0.10			
v/c Ratio	0.43	0.82		0.79	0.43	0.22	0.69	0.14	0.54	0.58	0.82	
Uniform Delay, d1	49.6	33.2		43.8	20.9	18.8	45.1	41.7	31.7	41.3	43.3	
Progression Factor	1.00	1.00		1.25	0.80	0.61	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.0	7.1		6.4	0.8	0.8	7.0	0.1	0.9	1.0	14.2	
Delay (s)	51.6	40.3		61.2	17.6	12.2	52.1	41.8	32.5	42.3	57.6	
Level of Service	D	D		E	B	B	D	D	C	D	E	
Approach Delay (s)		40.8			31.5			39.3			48.3	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	38.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

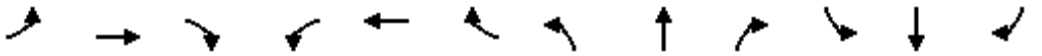
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	883	615	548	928	0	0	0	0	400	1	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Lane Util. Factor		0.91	1.00	0.97	0.95					0.95	0.95	0.88
Frpb, ped/bikes		1.00	0.97	1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5085	1504	3467	3471					1715	1719	2682
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5085	1504	3467	3471					1715	1719	2682
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	901	628	559	947	0	0	0	0	408	1	408
RTOR Reduction (vph)	0	0	396	0	0	0	0	0	0	0	0	185
Lane Group Flow (vph)	0	901	232	559	947	0	0	0	0	204	205	223
Confl. Peds. (#/hr)	7		11	11		7	1					1
Confl. Bikes (#/hr)						3						1
Heavy Vehicles (%)	0%	2%	4%	1%	4%	0%	0%	0%	0%	0%	0%	6%
Turn Type		NA	Perm	Prot	NA					Split	NA	custom
Protected Phases		2		1	6					7	7	4
Permitted Phases			2									
Actuated Green, G (s)		37.5	37.5	27.5	69.5					31.5	31.5	31.5
Effective Green, g (s)		37.5	37.5	27.5	69.5					31.5	31.5	31.5
Actuated g/C Ratio		0.34	0.34	0.25	0.63					0.29	0.29	0.29
Clearance Time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Vehicle Extension (s)		4.9	4.9	2.3	4.9					2.3	2.3	2.3
Lane Grp Cap (vph)		1733	512	866	2193					491	492	768
v/s Ratio Prot		c0.18		c0.16	0.27					0.12	c0.12	0.08
v/s Ratio Perm			0.15									
v/c Ratio		0.52	0.45	0.65	0.43					0.42	0.42	0.29
Uniform Delay, d1		29.0	28.3	36.9	10.3					31.8	31.8	30.6
Progression Factor		0.67	0.63	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.8	2.1	3.7	0.6					2.6	2.6	0.1
Delay (s)		20.2	19.9	40.6	10.9					34.4	34.4	30.7
Level of Service		C	B	D	B					C	C	C
Approach Delay (s)		20.1			21.9			0.0			32.5	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

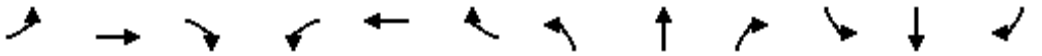
HCM Analysis – Existing + Project Phase 2 + Stage II



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	209	2	943	63	16	2	690	755	5	2	1083	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	0.88	1.00	1.00		0.97	0.95		1.00	0.95	1.00
Frpb, ped/bikes		1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85	1.00	0.98		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.95	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1737	2733	1805	1686		3183	3468		1805	3574	1497
Flt Permitted		0.72	1.00	0.41	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1304	2733	786	1686		3183	3468		1805	3574	1497
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	215	2	972	65	16	2	711	778	5	2	1116	184
RTOR Reduction (vph)	0	0	18	0	2	0	0	0	0	0	0	92
Lane Group Flow (vph)	0	217	954	65	16	0	711	783	0	2	1116	92
Confl. Peds. (#/hr)	2					2	3		1	1		3
Confl. Bikes (#/hr)			2						1			
Heavy Vehicles (%)	4%	0%	3%	0%	12%	0%	10%	4%	0%	0%	1%	5%
Turn Type	Perm	NA	pm+ov	Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		8	1		4		1	6		5	2	
Permitted Phases	8		8	4								2
Actuated Green, G (s)		22.0	49.8	22.0	22.0		27.8	69.8		1.2	43.2	43.2
Effective Green, g (s)		22.0	49.8	22.0	22.0		27.8	69.8		1.2	43.2	43.2
Actuated g/C Ratio		0.21	0.47	0.21	0.21		0.26	0.66		0.01	0.41	0.41
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		273	1400	164	353		842	2305		20	1470	615
v/s Ratio Prot			c0.18		0.01		c0.22	0.23		0.00	c0.31	
v/s Ratio Perm		c0.17	0.17	0.08								0.06
v/c Ratio		0.79	0.68	0.40	0.05		0.84	0.34		0.10	0.76	0.15
Uniform Delay, d1		39.4	21.4	35.8	33.1		36.6	7.6		51.4	26.4	19.4
Progression Factor		1.00	1.00	1.00	1.00		1.10	0.56		1.00	1.00	1.00
Incremental Delay, d2		14.7	1.4	1.6	0.1		7.3	0.3		2.2	2.3	0.1
Delay (s)		54.0	22.8	37.4	33.2		47.6	4.6		53.6	28.8	19.5
Level of Service		D	C	D	C		D	A		D	C	B
Approach Delay (s)		28.5			36.4			25.0			27.5	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		

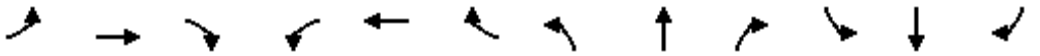
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1185	904	0	727	406	0	0	0	549	0	723
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0				4.5	4.5	4.5
Lane Util. Factor		0.95	1.00		0.95	1.00				0.95	0.95	1.00
Frpb, ped/bikes		1.00	0.99		1.00	0.98				1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85				1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95	0.95	1.00
Satd. Flow (prot)		3539	1564		3471	1580				1649	1649	1495
Flt Permitted		1.00	1.00		1.00	1.00				0.95	0.95	1.00
Satd. Flow (perm)		3539	1564		3471	1580				1649	1649	1495
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1261	962	0	773	432	0	0	0	584	0	769
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	79
Lane Group Flow (vph)	0	1261	962	0	773	432	0	0	0	292	292	690
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			1			5						
Heavy Vehicles (%)	0%	2%	2%	0%	4%	0%	0%	0%	0%	4%	0%	8%
Turn Type		NA	Free		NA	Free				Split	NA	Prot
Protected Phases		2			6					4	4	4
Permitted Phases			Free			Free						
Actuated Green, G (s)		45.6	105.0		45.6	105.0				49.9	49.9	49.9
Effective Green, g (s)		46.6	105.0		46.6	105.0				49.9	49.9	49.9
Actuated g/C Ratio		0.44	1.00		0.44	1.00				0.48	0.48	0.48
Clearance Time (s)		5.0			5.0					4.5	4.5	4.5
Vehicle Extension (s)		3.0			3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1570	1564		1540	1580				783	783	710
v/s Ratio Prot		c0.36			0.22					0.18	0.18	c0.46
v/s Ratio Perm			0.62			0.27						
v/c Ratio		0.80	0.62		0.50	0.27				0.37	0.37	0.97
Uniform Delay, d1		25.2	0.0		20.9	0.0				17.6	17.6	26.9
Progression Factor		0.92	1.00		1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2		3.0	1.2		1.2	0.4				0.3	0.3	26.7
Delay (s)		26.3	1.2		22.1	0.4				17.9	17.9	53.6
Level of Service		C	A		C	A				B	B	D
Approach Delay (s)		15.5			14.3			0.0			38.2	
Approach LOS		B			B			A			D	

Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		

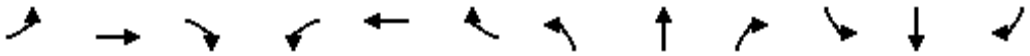
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	81	91	0	3	91	214	0	1	4	402	1	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97		0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.88		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1701	1900		1805	1900	1456		1655		1719	1336	
Flt Permitted	0.69	1.00		0.69	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (perm)	1237	1900		1313	1900	1456		1655		1719	1336	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	91	102	0	3	102	240	0	1	4	452	1	103
RTOR Reduction (vph)	0	0	0	0	0	200	0	4	0	0	66	0
Lane Group Flow (vph)	91	102	0	3	102	40	0	1	0	452	38	0
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)			1			2						7
Heavy Vehicles (%)	6%	0%	0%	0%	0%	8%	0%	0%	0%	5%	0%	18%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6		6						
Actuated Green, G (s)	16.4	6.9		23.0	10.2	10.2		0.9		22.0	22.0	
Effective Green, g (s)	16.4	6.9		23.0	10.2	10.2		0.9		22.0	22.0	
Actuated g/C Ratio	0.27	0.11		0.38	0.17	0.17		0.01		0.36	0.36	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)	2.5	3.0		2.5	3.0	3.0		2.5		2.5	2.5	
Lane Grp Cap (vph)	407	216		602	319	245		24		624	485	
v/s Ratio Prot	c0.04	c0.05		c0.00	0.05			c0.00		c0.26	0.03	
v/s Ratio Perm	0.03			0.00		0.03						
v/c Ratio	0.22	0.47		0.00	0.32	0.16		0.04		0.72	0.08	
Uniform Delay, d1	17.4	25.1		11.7	22.2	21.6		29.4		16.7	12.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.2	1.6		0.0	0.6	0.3		0.6		3.9	0.1	
Delay (s)	17.6	26.8		11.7	22.7	21.9		30.0		20.6	12.7	
Level of Service	B	C		B	C	C		C		C	B	
Approach Delay (s)		22.4			22.0			30.0			19.1	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	20.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	60.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		

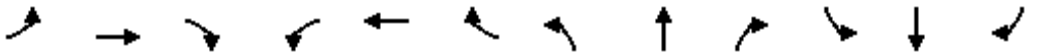
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	98	328	231	75	328	41	105	186	49	41	379	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.98		1.00	0.97		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	1735		1752	1796		1770	1788		1766	1782	
Flt Permitted	0.28	1.00		0.13	1.00		0.12	1.00		0.53	1.00	
Satd. Flow (perm)	520	1735		244	1796		216	1788		994	1782	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	109	364	257	83	364	46	117	207	54	46	421	227
RTOR Reduction (vph)	0	26	0	0	5	0	0	9	0	0	20	0
Lane Group Flow (vph)	109	595	0	83	405	0	117	252	0	46	628	0
Confl. Peds. (#/hr)	1		2	2		1			3	3		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	1%	2%	1%	3%	4%	2%	2%	2%	4%	2%	1%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	37.6	31.0		36.2	30.3		40.6	34.5		36.8	32.6	
Effective Green, g (s)	37.6	31.0		36.2	30.3		40.6	34.5		36.8	32.6	
Actuated g/C Ratio	0.41	0.33		0.39	0.33		0.44	0.37		0.40	0.35	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	301	580		191	587		197	666		430	627	
v/s Ratio Prot	0.03	c0.34		c0.03	0.23		c0.04	0.14		0.00	c0.35	
v/s Ratio Perm	0.12			0.14			0.22			0.04		
v/c Ratio	0.36	1.03		0.43	0.69		0.59	0.38		0.11	1.00	
Uniform Delay, d1	18.7	30.8		21.9	27.1		21.0	21.2		17.3	30.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	44.1		1.6	3.5		4.7	0.4		0.1	36.3	
Delay (s)	19.4	74.9		23.5	30.6		25.7	21.6		17.4	66.3	
Level of Service	B	E		C	C		C	C		B	E	
Approach Delay (s)		66.7			29.4			22.9			63.1	
Approach LOS		E			C			C			E	

Intersection Summary			
HCM 2000 Control Delay	50.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	92.6	Sum of lost time (s)	17.0
Intersection Capacity Utilization	88.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	908	142	451	857	218	233	90	347	422	212	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.0		5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.91		0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1687	3100		3467	3600	1347	1805	4600	1599	4000	1808	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1687	3100		3467	3600	1347	1805	4600	1599	4000	1808	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	52	936	146	465	884	225	240	93	358	435	219	64
RTOR Reduction (vph)	0	18	0	0	0	70	0	0	46	0	10	0
Lane Group Flow (vph)	52	1064	0	465	884	155	240	93	312	435	273	0
Confl. Peds. (#/hr)	5		5	5		5	2					2
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	7%	3%	1%	1%	3%	16%	0%	1%	1%	3%	1%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	7.0	33.6		17.7	44.3	44.3	18.5	18.5	36.2	20.2	20.2	
Effective Green, g (s)	7.0	34.6		17.7	45.3	45.3	18.5	18.5	36.2	20.2	20.2	
Actuated g/C Ratio	0.06	0.31		0.16	0.41	0.41	0.17	0.17	0.33	0.18	0.18	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	0.5		2.5	4.3	4.3	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	107	975		557	1482	554	303	773	598	734	332	
v/s Ratio Prot	0.03	c0.34		c0.13	0.25		c0.13	0.02	0.08	0.11	c0.15	
v/s Ratio Perm						0.12			0.11			
v/c Ratio	0.49	1.09		0.83	0.60	0.28	0.79	0.12	0.52	0.59	0.82	
Uniform Delay, d1	49.8	37.7		44.7	25.2	21.5	43.9	38.8	29.9	41.1	43.2	
Progression Factor	1.00	1.00		1.21	0.79	0.63	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.5	57.1		9.1	1.6	1.1	12.8	0.1	0.6	1.1	14.8	
Delay (s)	52.3	94.8		63.3	21.4	14.6	56.7	38.9	30.5	42.2	58.0	
Level of Service	D	F		E	C	B	E	D	C	D	E	
Approach Delay (s)		92.8			32.8			40.7			48.4	
Approach LOS		F			C			D			D	

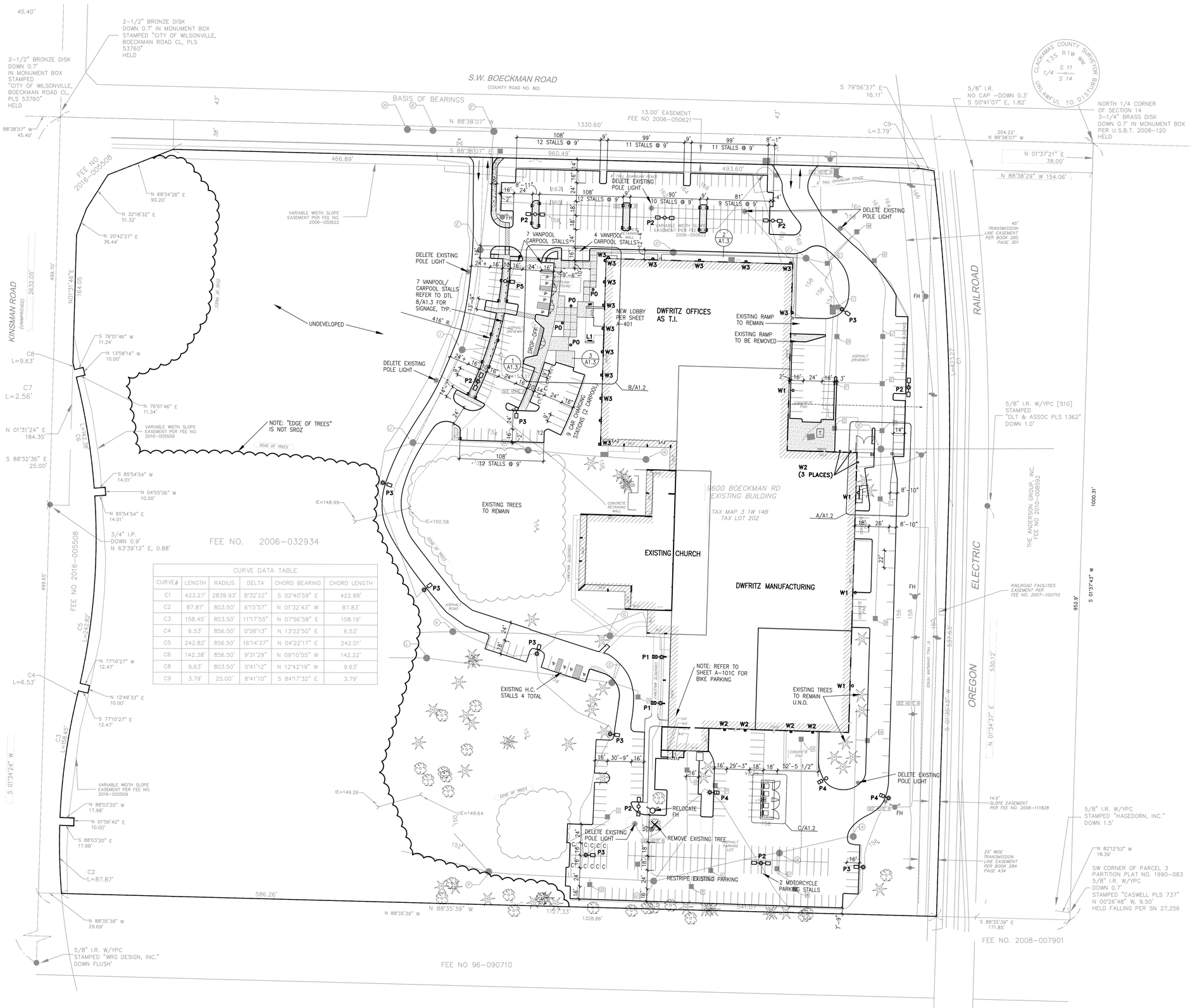
Intersection Summary			
HCM 2000 Control Delay	53.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	986	691	557	1052	0	0	0	0	408	1	477
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Lane Util. Factor		0.91	1.00	0.97	0.95					0.95	0.95	0.88
Frpb, ped/bikes		1.00	0.97	1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5085	1504	3467	3471					1715	1719	2682
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5085	1504	3467	3471					1715	1719	2682
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1006	705	568	1073	0	0	0	0	416	1	487
RTOR Reduction (vph)	0	0	395	0	0	0	0	0	0	0	0	141
Lane Group Flow (vph)	0	1006	310	568	1073	0	0	0	0	208	209	346
Confl. Peds. (#/hr)	7		11	11		7	1					1
Confl. Bikes (#/hr)						3						1
Heavy Vehicles (%)	0%	2%	4%	1%	4%	0%	0%	0%	0%	0%	0%	6%
Turn Type		NA	Perm	Prot	NA					Split	NA	custom
Protected Phases		2		1	6					7	7	4
Permitted Phases			2									
Actuated Green, G (s)		37.5	37.5	27.5	69.5					31.5	31.5	31.5
Effective Green, g (s)		37.5	37.5	27.5	69.5					31.5	31.5	31.5
Actuated g/C Ratio		0.34	0.34	0.25	0.63					0.29	0.29	0.29
Clearance Time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Vehicle Extension (s)		4.9	4.9	2.3	4.9					2.3	2.3	2.3
Lane Grp Cap (vph)		1733	512	866	2193					491	492	768
v/s Ratio Prot		0.20		c0.16	0.31					0.12	0.12	c0.13
v/s Ratio Perm			c0.21									
v/c Ratio		0.58	0.60	0.66	0.49					0.42	0.42	0.45
Uniform Delay, d1		29.8	30.1	37.0	10.8					31.9	31.9	32.2
Progression Factor		0.60	0.73	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.7	2.8	3.9	0.8					2.7	2.7	0.2
Delay (s)		18.6	24.6	40.9	11.6					34.5	34.6	32.4
Level of Service		B	C	D	B					C	C	C
Approach Delay (s)		21.1			21.7			0.0			33.4	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



CURVE DATA TABLE					
CURVE #	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD LENGTH
C1	423.27'	2839.93'	8°32'22"	S 02°40'59" E	422.88'
C2	87.87'	803.50'	6°15'57"	N 01°32'43" W	87.83'
C3	158.45'	803.50'	11°17'55"	N 07°56'58" E	158.19'
C4	6.53'	856.50'	0°26'13"	N 13°22'50" E	6.53'
C5	242.82'	856.50'	16°14'37"	N 04°22'17" E	242.01'
C6	142.38'	856.50'	9°31'29"	N 09°10'55" W	142.22'
C8	9.63'	803.50'	0°41'12"	N 12°42'19" W	9.63'
C9	3.79'	25.00'	8°41'10"	S 84°17'32" E	3.79'

SITE PLAN
1" = 50'-0"

Site Design Review Scope:

Overall the project is to renovate an existing warehouse facility to become DWFRITZ Precision Automation offices and light manufacturing. The existing Grace Chapel portion of the building will continue as a separation operation to DWFRITZ, and no renovation of this space is planned at this time, other than reroofing and insulation of the high roof portion.

Site Design Review Submittal: This submittal is limited to site work (by Lance Mueller & Associates) and the small lobby addition (by Hacker). Parking is infilled in areas that were previously in grass and the existing parking and circulation areas largely remain. Site lighting uses existing pole lights where possible, but upgrades to new LED heads.

Deferred Site Design Review submittals:
1. Landscape Irrigation Plan
2. Signage/Graphics proposal

Legal Description:

A tract of land situated in Section 14, Township 3 South, Range 1 West of the Willamette Meridian, in the City of Wilsonville, Clackamas County, Oregon, more particularly described as follows: Beginning at an iron pipe at the Northwest corner of the Northeast one quarter of the Northwest one quarter of said Section 14, said point being the Northwest corner of that tract conveyed to Frederic W. Young, et ux, recorded January 13, 1947 in Book 383, Page 262, Deed Records; thence South 0° 13' East along the West line of said Young tract 499.70 feet to an iron pipe at the Southwest corner thereof; and the true point of beginning of the tract herein to be described; thence North 89° 43' East along the South line of said Young tract 25.00 feet to a point; thence North 0° 13' West parallel with the West line of said Young tract 474.70 feet to a point that is Southerly 25.00 feet measured at right angles from the North line of said Young tract; thence North 89° 42' East parallel with the North line of said Young tract 1080.00 feet, more or less, to the West line of the Oregon Electric Railway right of way; thence Southerly along the West line of said Oregon Electric Railway right of way 960.00 feet, more or less, to a point of intersection with the South boundary of the tract conveyed to Sunn Musical Equipment Company, a corporation, by deed filed May 5, 1969 as Recorder's Fee No. 69-7881, Film Records; thence South 89° 44' West along said South boundary, 1160.00 feet, more or less, to the Southwest corner thereof, said point being in the Westerly boundary of the Northeast one quarter of the Northwest one quarter of said Section 14; thence North 0° 13' West along said boundary 499.7 feet to the true point of beginning. EXCEPTING THEREFROM: All that portion described in deed to the City of Wilsonville for road purposes, recorded June 2, 2006, Recorders Fee No. 2006-050621.
ALSO EXCEPTING THEREFROM: All that portion described in deed to the City of Wilsonville for road purposes, recorded January 29, 2016, Recorders Fee No. 2016-005508.

Tax Parcel Numbers: 00810331; 05021199; 05008927

Zoning: PDI (Planned Development Industrial)

Index of Drawings:

Statistics:

Building Area:

1st Floor SF	Upper Levels	
137,398	0	DWFRITZ Building Shell (Former OrePac Facility)
23,468	6,900	Existing Grace Chapel & Mezzanine (soon - kDWFRITZ use)
365	0	New Lobby Addition (by Hacker)
161,231		**Total 1st Floor Area**
168,131		**Total Floor Area** (with Mezzanine)

Site Area: 24.50 Acres

Building Coverage:	161,207sf	15% of site
Existing Paving Area:	152,559sf	
Proposed Paving Area:	67,000sf (addition)	
	227,174sf Total Paving	21% of site
Landscape:	678,839sf	64% of site

Parking:

Required:	2.7 / 1,000sf office	(52,799sf x 2.7/1,000 => 143)
	2.7 / 1,000sf Chapel*	(33,368sf x 2.7/1,000 => 90)
	1.6 / 1,000sf manuf.	(81,964sf x 1.6/1,000 => 131)
		364 (Minimum) Required
Existing:	156 (Incl. 6 Accessible)	
Proposed:	402 (Incl. 9 Accessible (4 are existing) &18 Compacts	

* The Chapel has rec'd notification that 4/1/17 is their last day, and the space will become part of DWFRITZ Precision Engineering by separate permits. Until then DWFRITZ does not work on Sundays when the Chapel is occupied.

Carpool/Vanpool Parking:

Required:	5% of required parking	
Existing:	Not known	
Proposed:	21 (5% x 402 = 20 minimum)	

Bike Parking:

Required:	1 / 5,000sf office	(52,799sf / 5,000 => 10.56)
	1 / 5,000sf Chapel *	(33,368sf / 5,000 => 6.67)
	1 / 10,000sf manuf.	(81,964sf / 10,000 => 8.19)
		26 Required
Existing:	0	
Proposed:	25	Interior - kTemporary room in the Chapel area.
	2	Outside in ornamental racks at lobby entry.
	27	Total Provided (Permanent interior bike storage will move to inside the Chapel area soon.)

Loading Berths:

Required:	Minimum three (3) (sized min. 12' x 35' x 14' clear ht.)
Existing	Five (5) Existing to remain
Proposed	Two (2) new proposed.
	7 total loading berths proposed.

Trash/Recycle Storage Area Calculations:

Required:	4sf per 1,000sf Office	(52,799sf x 4sf => 212sf)
	6sf per 1,000sf Chapel*	(30,368sf x 6sf => 182sf)
	6sf per 10,000sf manuf.	(81,964sf x 6sf => 492sf)
		886sf Required
Existing:	Yes, but not used. See proposed.	
Proposed:	540sf (New Enclosure S. of building – 12' x 45')	
	160sf (New Container E. of building – 8' x 20' x 4' high)	
	288sf (New Enclosure E. of building – 12' x 24')	
	968sf Proposed	

Building Code:

2014 Oregon Structural Specialty Code (OSSC)
2014 Oregon Mechanical Specialty Code
2014 Oregon Fire Code
2014 Oregon Plumbing Code
2014 Oregon Residential Specialty Code
2010 Oregon Manufactured Dwelling and Parks Specialty Code
2010 Oregon Solar Specialty Code
2014 Oregon Energy Specialty Code

Const Type: Type III-B, Sprinklered
Occupancy Groups:
B Office
F-1 Factory Indust – Mod Hazard
S-1 Moderate Hazard Storage

Allowable Floor Area: Unlimited per Section 507.3 (for sprinklered 1-story buildings of Group B, F, M, or S occupancy, other than Type V construction.)

Project Team:

Owner / Developer
W4 LLC
1404 Broadmoor Drive E.
Seattle, WA 98112
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JackMartinis@Outlook.com

Alternate Contact: Mac Martin
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MacMartinis@gmail.com

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craigh@aaieng.com

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Wilsonville, OR 97070Contact: George Saunders
503-968-8787
gsaunders@geodesigninc.com

Landscape Architect
Otten Landscape Architects
3933 SW Kelly Avenue, Suite B
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Janet@OttenLA.com

Envelope Consultant
Franklin Engineering
625 Fourth Avenue, Suite 202
Kirkland, WA 98033
Contact: Natalie Thrower
425-827-3324; 425-827-6252

General Contractor
Perlo Construction
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Portland, OR 97224
Contact: Chris McLaughlin
503-624-2090; (Fax) 503-639-4134
cmclaughlin@perlo.biz

City of Wilsonville
EXHIBIT B2 DB17-0008 et seq

SITE DESIGN REVIEW

no.	revision	date
4	SITE DESIGN REVIEW RESUBMITTAL #2	8-14-17
3	SITE DESIGN REVIEW RESUBMITTAL #1	5-8-17
2	SITE DESIGN REVIEW	2-24-17
1	SITE DESIGN REVIEW PREAPP	12-15-16

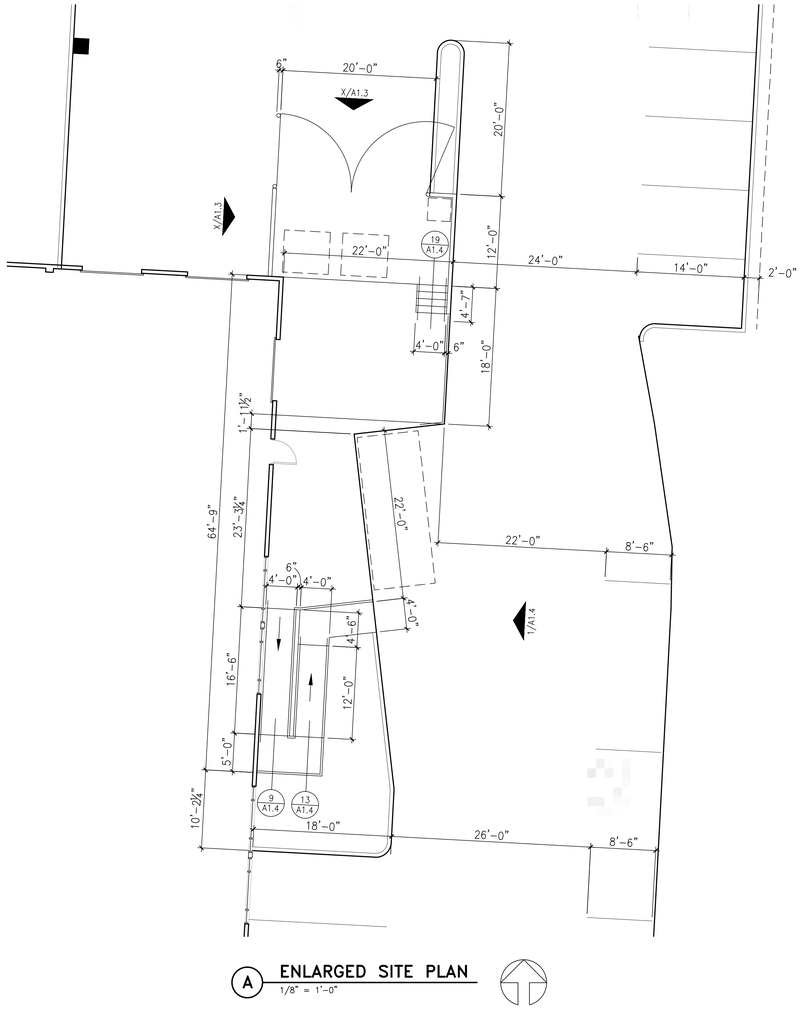
job no. 16-066
drawn EM
checked
date 5-8-17

REGISTERED ARCHITECT JAMES MUELLER 1491 STATE OF OREGON

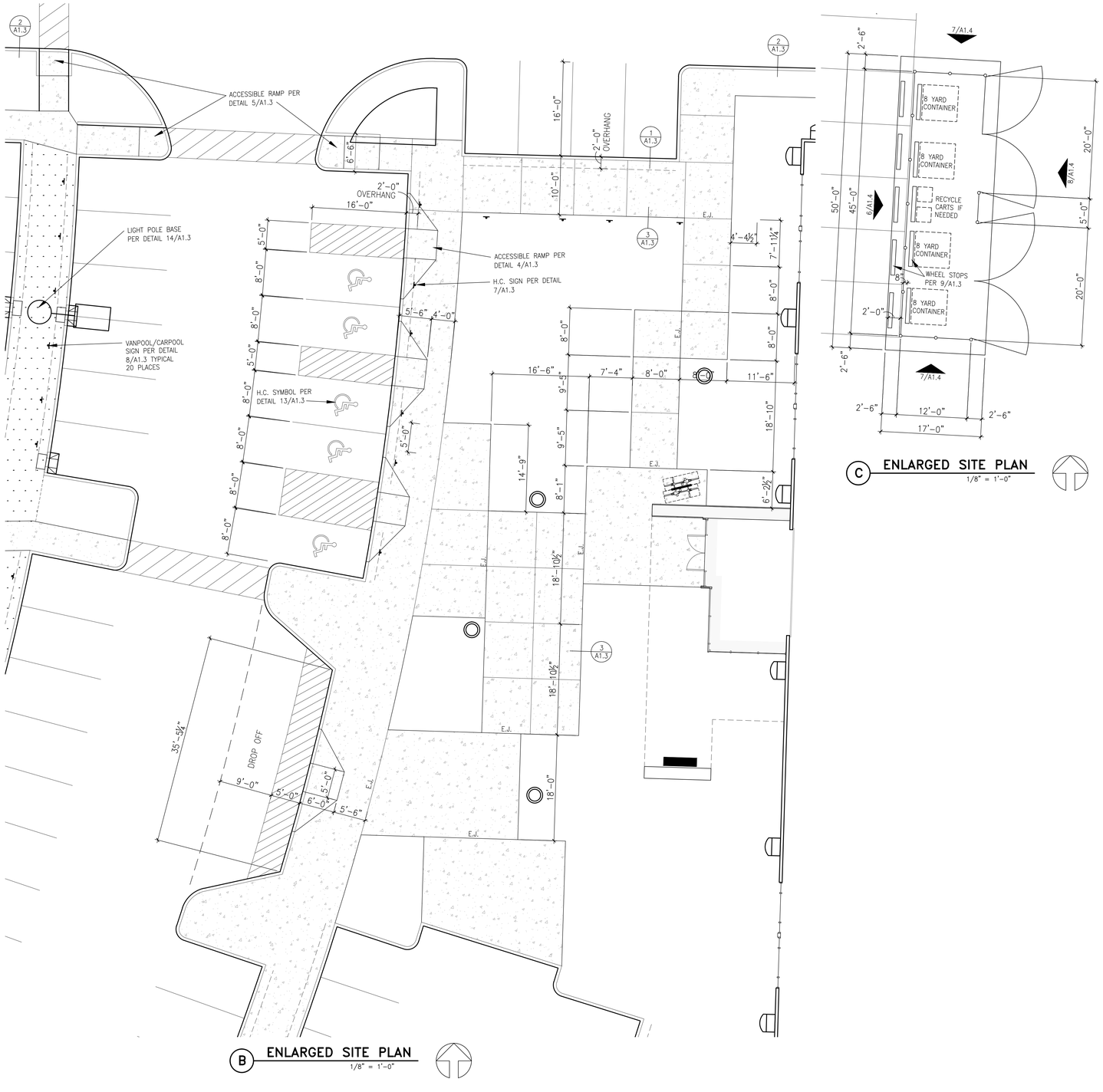
DWFRITZ Renovation
9900 SW Boeckman Rd.
Wilsonville, OR 97070

LANCE MUELLER & ASSOCIATES
ARCHITECTS · AIA
130 LAKESIDE · SEATTLE, WA 98122 · 206 325 2553

SITE PLAN
sheet A1.1



A ENLARGED SITE PLAN
1/8" = 1'-0"



B ENLARGED SITE PLAN
1/8" = 1'-0"

C ENLARGED SITE PLAN
1/8" = 1'-0"

no.	revision	date
4	SITE DESIGN REVIEW RESUBMITTAL #2	8-14-17
3	SITE DESIGN REVIEW RESUBMITTAL #1	5-8-17

16-066 job no.
EM drawn
checked
5-8-17 date

REGISTERED ARCHITECT · LANCE MUELLER · SEATTLE, WA. · 1981 · STATE OF OREGON

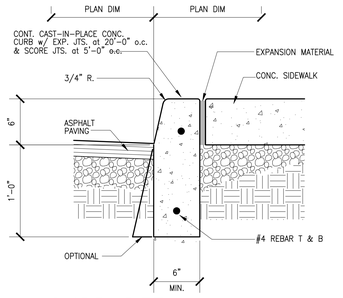
DWFRITZ Renovation
9900 SW Boeckman Rd.
Wilsonville, OR 97070

ENLARGED SITE PLANS AND DETAILS

LANCE MUELLER & ASSOCIATES
ARCHITECTS · AIA
130 LAKESIDE · SEATTLE, WA 98122 · 206 325 2553

sheet
A1.2

SITE DESIGN REVIEW



1 CURB DETAIL
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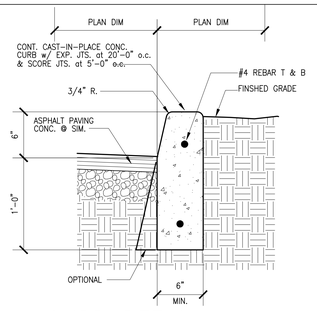

2 CURB DETAIL
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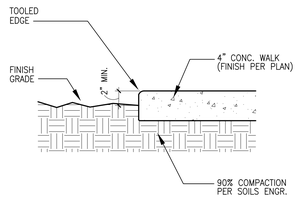

3 SIDEWALK DETAIL
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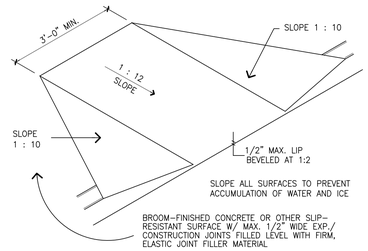
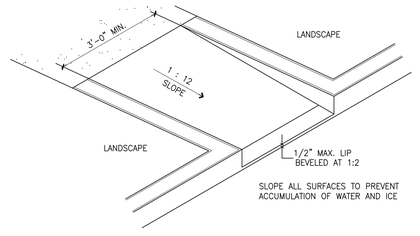


4 ACCESSIBLE CURB RAMP
SCALE: N.T.S.



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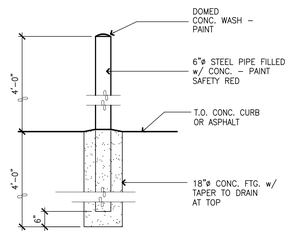

6 BOLLARD DETAIL
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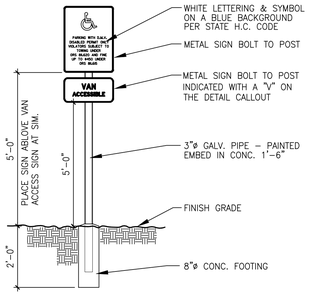
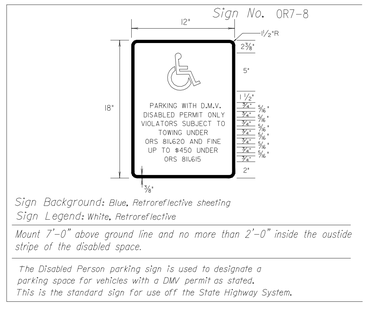


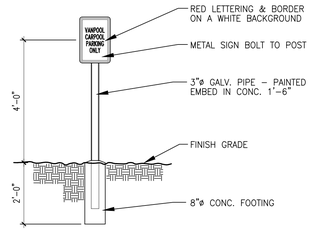
7 ACCESSIBLE PARKING SIGN
SCALE: 1/2" = 1'-0"



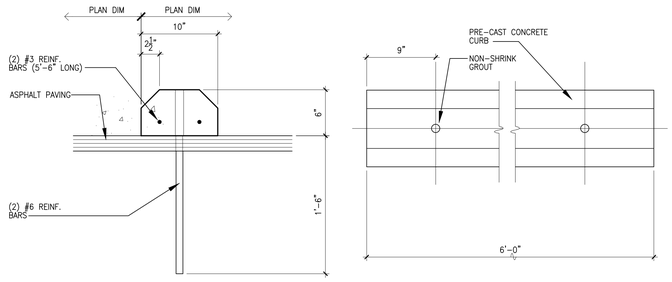
Sign Background: Blue, Retroreflective sheeting
Sign Legend: White, Retroreflective

Mount 7'-0" above ground line and no more than 2'-0" inside the ouside stripe of the disabled space.

The Disabled Person parking sign is used to designate a parking space for vehicles with a DMV permit as stated. This is the standard sign for use off the State Highway System.



8 CARPOOL PARKING SIGN
SCALE: 1/2" = 1'-0"



9 PRECAST WHEEL STOP
SCALE: 1 1/2" = 1'-0"

13 H.C. SYMBOL DETAIL
N.T.S.

14 LIGHT POLE BASE DETAIL
SCALE: 1/2" = 1'-0"

no.	revision	date
4	SITE DESIGN REVIEW RESUBMITAL #2	8-14-17
3	SITE DESIGN REVIEW RESUBMITAL #1	5-8-17
2	SITE DESIGN REVIEW	2-24-17
1	SITE DESIGN REVIEW PROPP	12-15-16

job no. 16-066
drawn EM
checked
date 5-8-17

REGISTERED ARCHITECT LANCE MUELLER EXPIRES: 12/31 STATE OF OREGON

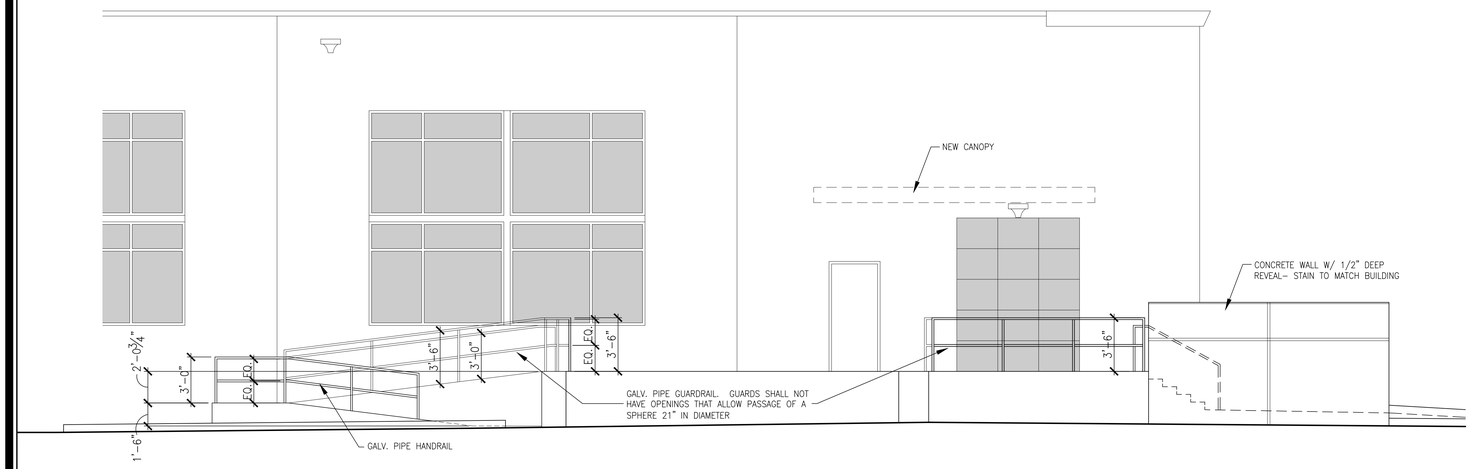
DWFRITZ Renovation
9900 SW Boeckman Rd.
Wilsonville, OR 97070

LANCE MUELLER & ASSOCIATES
ARCHITECTS · AIA
130 LAKESIDE · SEATTLE, WA 98122 · 206 325 2553

SITE DETAILS

sheet A1.3

SITE DESIGN REVIEW



1 ELEVATION
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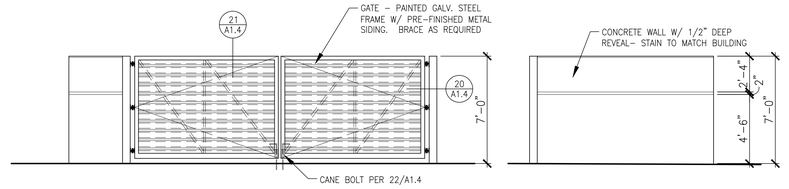
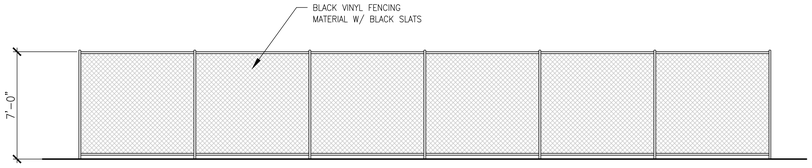


2 ELEVATION
SCALE: 1/4" = 1'-0"

3 ELEVATION
SCALE: 1/4" = 1'-0"



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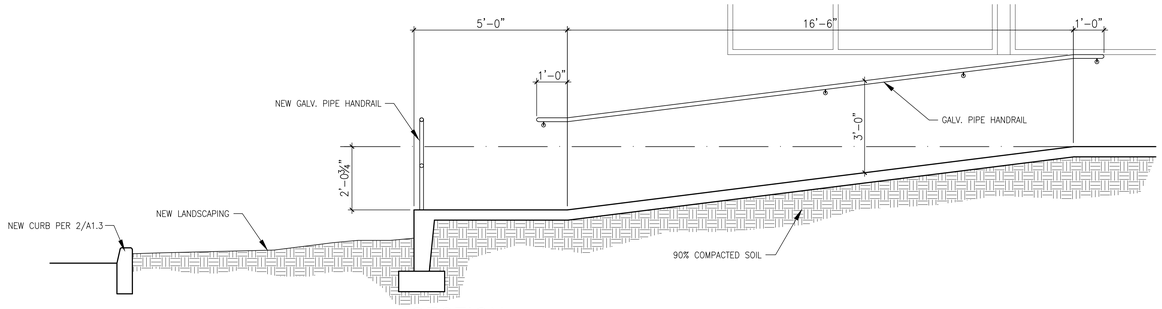

9 SECTION
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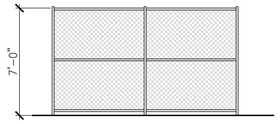

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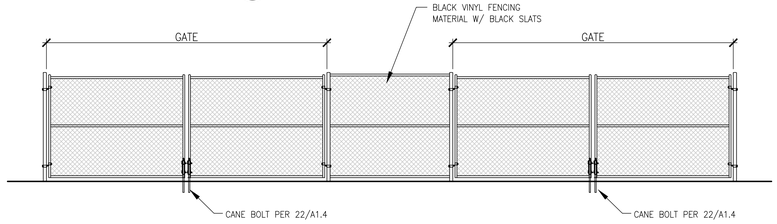

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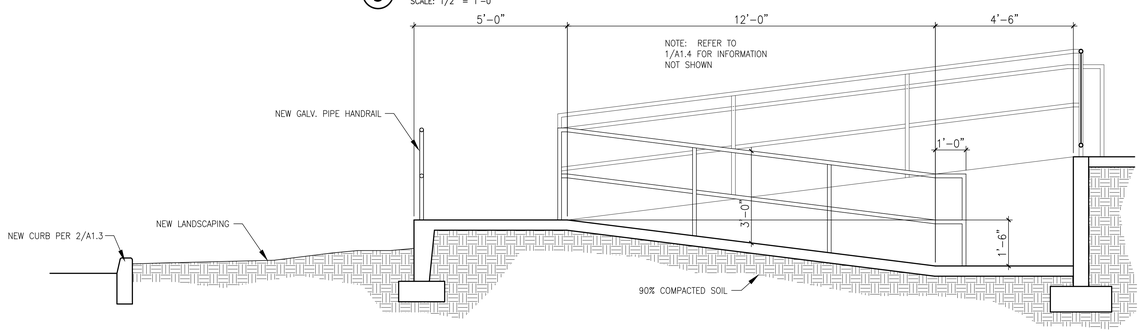

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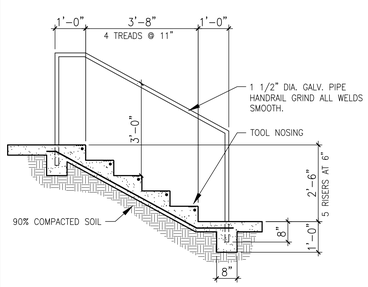

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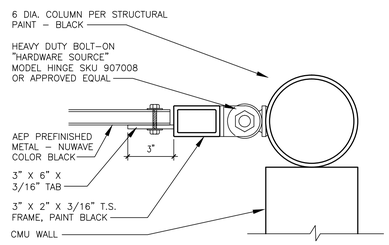

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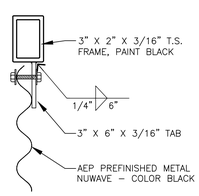

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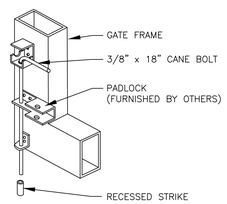

22 SECTION
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SITE DESIGN REVIEW

no.	revision	date
4	SITE DESIGN REVIEW RESUBMITTAL #2	8-14-17
checked		5-8-17
drawn		
job no.		
16-066		
EM		

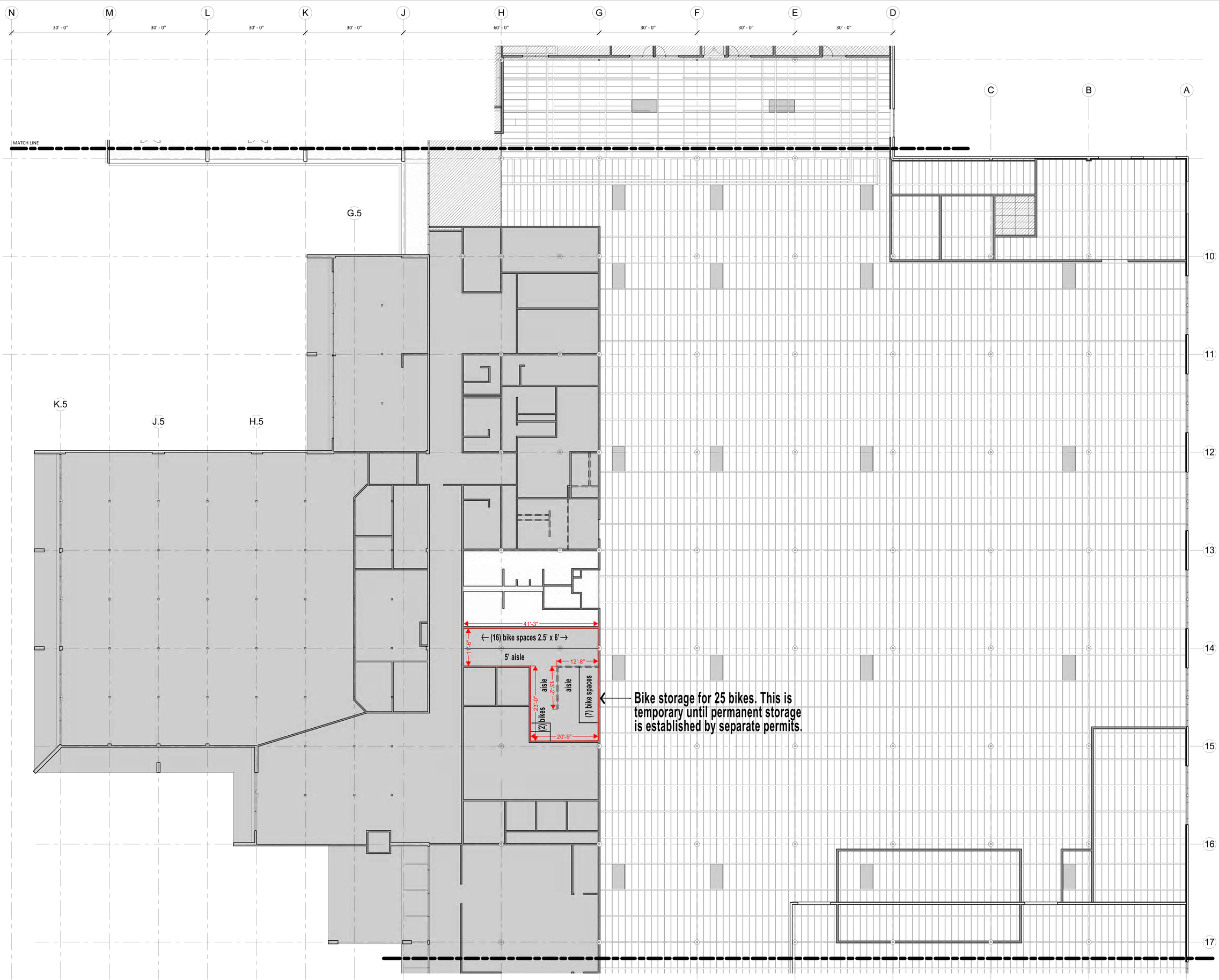
REGISTERED ARCHITECT · JANINE MUELLER · 1491 · SEATTLE, WA. · STATE OF OREGON

DWFRITZ Renovation
9900 SW Boeckman Rd.
Wilsonville, OR 97070

LANCE MUELLER & ASSOCIATES
ARCHITECTS · AIA
130 LAKESIDE · SEATTLE, WA 98122 · 206 325 2553

SITE DETAILS

sheet
A1.4



1 A-152B REFELCTED CEILING PLAN - MANUFACTURING - UPPER
3/32" = 1'-0"

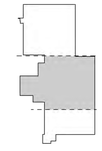
ARCHITECTS
HACKER
733 SW Oak, Portland, OR 97205

CONSULTANT

STAMP

REVISION NO. DATE

KEY PLAN - (NTS)



TRUE NORTH PLAN NORTH

DWFRITZ

DWFRITZ AUTOMATION
9900 SW Boekman Rd.
Wilsonville, OR 97070

ISSUANCE
PERMIT SET

PROJECT NUMBER
01629

DATE
03/27/2017

SCALE
As indicated

DRAWING TITLE
REFLECTED CEILING PLAN - UPPER B

(Use for Bike Storager location only)

SHEET NUMBER
A-152 - Bike

PLANT LEGEND: GENERAL LANDSCAPING

SYMBOL	QTY.	SUGGESTED PLANT SPECIES	SIZE	SPACING
		TREES		
	1 (*)	Street Tree (To Match Existing)	2" cal.	As Shown
	15	Marshall Seedless Ash Village Green Zelkova	2" cal.	As Shown
	3 (*)	Ponderosa Pine Western Red Cedar	6' ht.	As Shown
	5 (*)	Eastern Redbud River Birch	2" cal.	As Shown
	21 (*5)	Karpick Red Maple Columnar Tulip Tree	2" cal.	As Shown
	14	Hinoki Cypress Little Gem Magnolia	6' ht.	As Shown
		SHRUBS		
	8	Summer Snowflake Viburnum Crape Myrtle Forsythia	5 gal.	6–8' o.c.
	40	Dwarf Strawberry Tree Pacific Wax Myrtle	5 gal.	6' o.c.
	27	Loropetalum Bigleaf Hydrangea Weigela	5 gal.	4' o.c.
	20	Aztec Pearl Choisya Rhododendron	5 gal.	5' o.c.
	100	Waxleaf Privet Inkberry	5 gal.	4' o.c.
	69	Gulf Stream Nandina Chuck Hayes Gardenia	2 gal.	3' o.c.
	169	David Viburnum Lucky Lots Abelia	2 gal.	3' o.c.
	95	Silver Queen Euonymus Nordic Inkberry	2 gal.	3' o.c.
	94	Compact Escallonia Ramapo Rhododendron	2 gal.	3' o.c.
	279	Neon Flash Spirea Dwarf Deutzia	2 gal.	3' o.c.
		GROUNDCOVER		
	333	Creeping Mahonia	1 gal.	3' o.c.
	254	Liriope Wintercreeper Euonymus	1 gal.	2–3' o.c.
	500	Cotoneaster	1 gal.	4' o.c.
	117	Privet Honeysuckle	1 gal.	4' o.c.
	27	Dwarf Fountain Grass	1 gal.	2' o.c.
	212	Pachysandra	4 inch	15" o.c.
		Rough Seed Grass	Seed	
	77	Soft Shield Fern	1 gal.	2' o.c.

(*) = NON–REQUIRED SITE TREES / MITIGATION TREES

PLANT LIST: STORM WATER PLANTERS

SYMBOL	QTY.	LATIN NAME/ Common Name	SIZE	SPACING
		TREES		
	5	NYSSA SYLVATICA Black Tupelo	2" cal.	As Shown
		SHRUBS		
	37	SPIRAEA DOUGLASII Douglas Spirea	30" ht.	As Shown
	50	MAHONIA AQU. 'COMPACTA' Compact Mahonia	1 gal.	As Shown
		HERBACEOUS PLANTS (Alternate double rows)		
	512	CAREX OBNUPTA Slough Sedge	Plugs	1' o.c.
	512	JUNCUS PATENS Spreading Rush	Plugs	1' o.c.
	512	SCIRPUS MICROCARPUS Small Fruit Bulrush	Plugs	1' o.c.
		GROUNDCOVER		
	1,424	FRAGARIA CHILOENSIS Beach Strawberry	1 gal.	1' o.c.

GENERAL NOTES:

1. Existing landscaping to remain in all areas that are not showing new landscaping. Remove existing landscaping as needed to accommodate new plantings.
2. Contractor is to verify all plant quantities.
3. Adjust plantings in the field as necessary.
4. Project is to be irrigated by an automatic, underground system, which will provide full coverage for all plant material. Modification of the existing system to be design/build by Landscape Contractor. Guarantee system for a minimum one year.
5. All plants are to be fully foliaged, well branched and true to form.
6. Contractor is to notify Landscape Architect or Owner's Representative of any site changes or unforeseen conditions that may be detrimental to plant health, or cause future problems to any structural elements of the project.
7. See Tree Plan for information regarding existing tree protection.

TREE NOTES
See Tree Plan & Arborist Report for Reference

MITIGATION:

TOTAL TREES TO BE REMOVED= 7
PROPOSED NON–REQUIRED SITE TREES= 14

INTERIOR PARKING:

NORTH/WEST LOT–
TOTAL PARKING SPACES= 180
TREES REQUIRED (1 PER 8 SPACES)= 23
EXISTING TREE CREDITS= 0
NEW TREES PROPOSED= 23

SOUTH LOT–
TOTAL PARKING SPACES= 158
TREES REQUIRED (1 PER 8 SPACES)= 20
EXISTING TREE CREDITS= 26
NEW TREES PROPOSED= 0

SOUTHWEST LOT–
TOTAL PARKING SPACES= 11
TREES REQUIRED (1 PER 8 SPACES)= 2
EXISTING TREE CREDITS= 10
NEW TREES PROPOSED= 0

EAST LOT–
TOTAL PARKING SPACES= 63
TREES REQUIRED (1 PER 8 SPACES)= 8
EXISTING TREE CREDITS= 9
NEW TREES PROPOSED= 3

STORM WATER FACILITY REQUIREMENTS
Per City Of Wilsonville Design & Construction Standards

PLANTER 'A'
Facility Area= 191 SF
Zone 'S' Area= 51 SF
Herbaceous Plants Required= 59
Zone 'A' Area= 140 SF
Large Shrubs Required= 4
Small Shrubs Required= 6
Groundcover Required= 161

PLANTERS 'B–D'
Total Facility Area= 1,558 SF
Zone 'S' Area= 460 SF
Herbaceous Plants Required= 529
Zone 'A' Area= 1,098 SF
Large Shrubs Required= 33
Small Shrubs Required= 44
Groundcover Required= 1,263

PLANTERS 'E–G'
Total Facility Area= 268 SF
Zone 'S' Area= 824 SF
Herbaceous Plants Required= 948

STORM WATER PLANTER 'A'
STORM WATER PLANTER 'B'
STORM WATER PLANTER 'C'
STORM WATER PLANTER 'D'
STORM WATER PLANTER 'E'
STORM WATER PLANTER 'F'
STORM WATER PLANTER 'G'

LANDSCAPE PLAN

SCALE 1" = 40'–0"

SITE DESIGN REVIEW

1 Site Design Review Resubmittal #1 — 8-4-17

16-066 job no. | EH drawn | JLO checked | 8-4-17 date

REGISTERED LANDSCAPE ARCHITECT — JANET L. OTTEN — OREGON — EXP. 12/31/17

DWFRITZ Renovation
9900 SW Boeckman Rd.
Wilsonville, OR 97070

SITE PLAN

LANCE MUELLER & ASSOCIATES
ARCHITECTS · AIA
130 LAKESIDE · SEATTLE, WA 98122 · 206 325 2553

sheet L1.0

OUTLINE SPECIFICATIONS PLANTING AND SEEDING:

GENERAL: All plants shall conform to all applicable standards of the latest edition of the "American Association of Nurserymen Standards", A.N.S.I. Z60.1 – 1973. Meet or exceed the regulations and laws of Federal, State, and County regulations, regarding the inspection of plant materials, certified as free from hazardous insects, disease, and noxious weeds, and certified fit for sale in Oregon.

The apparent silence of the Specifications and Plans as to any detail, or the apparent omission from them of a detailed description concerning any point, shall be regarded as meaning that only the best general practice is to prevail and that only material and workmanship of first quality are to be used. All interpretations of these Specifications shall be made upon the basis above stated.

Landscape contractor shall perform a site visit prior to bidding to view existing conditions.

PERFORMANCE QUALITY ASSURANCE: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary horticultural practices and who are completely familiar with the specified requirements and methods needed for the proper performance of the work of this section.

NOTIFICATION: Give Landscape Architect minimum of 2 days advance notice of times for inspections. Inspections at growing site does not preclude Landscape Architect's right of rejection of deficient materials at project site. Each plant failing to meet the above mentioned "Standards" or otherwise failing to meet the specified requirements as set forth shall be rejected and removed immediately from the premises by the Contractor and at his expense, and replaced with satisfactory plants or trees conforming to the specified requirements.

SUBSTITUTIONS: Only as approved by the Landscape Architect or the Owner's Representative.

GUARANTEE AND REPLACEMENT: All plant material shall be guaranteed from final acceptance for one full growing season or one year, whichever is longer. During this period the Contractor shall replace any plant material that is not in good condition and producing new growth (except that material damaged by severe weather conditions, due to Owner's negligence, normally unforeseen peculiarities of the planting site, or lost due to vandalism). Guarantee to replace, at no cost to Owner, unacceptable plant materials with plants of same variety, age, size and quality as plant originally specified. Conditions of guarantee on replacement plant shall be same as for original plant.

Landscape Contractor shall keep on site for Owner's Representative's inspection, all receipts for soil amendment and topsoil deliveries.

PROTECTION Protect existing roads, sidewalks, and curbs, landscaping, and other features remaining as final work. Verify location of underground utilities prior to doing work. Repair and make good any damage to service lines, existing features, etc. caused by landscaping installation.

PLANT QUALITY ASSURANCE: Deliver direct from nursery. Maintain and protect roots of plant material from drying or other possible injury. Store plants in shade and protect them from weather immediately upon delivery, if not to be planted within four hours.

Nursery stock shall be healthy, well branched and rooted, formed true to variety and species, full foliaged, free of disease, injury, defects, insects, weeds, and weed roots. Trees shall have straight trunks, symmetrical tips, and have an intact single leader. Any trees with double leaders will be rejected upon inspection. All Plants: True to name, with one of each bundle or lot tagged with the common and botanical name and size of the plants in accordance with standards of practice of the American Association of Nurserymen, and shall conform to the Standardized Plant Names, 1942 Edition.

Container grown stock: Small container–grown plants, furnished in removable containers, shall be well rooted to ensure healthy growth. **Grow container plants in containers a minimum of one year** prior to delivery, with roots filling container but not root bound. Bare root stock: Roots well–branched and fibrous. Balled and burlapped (B&B): Ball shall be of natural size to ensure healthy growth. Ball shall be firm and the burlap sound. No loose or made ball will be acceptable.

TOPSOIL AND FINAL GRADES: Landscape Contractor is to verify with the General Contractor if the on site topsoil is or is not conducive to proper plant growth. Supply alternate bid for imported topsoil.

Landscape Contractor is to supply and place 12" of topsoil in planting beds and 3" in rough seed areas. If topsoil stockpiled on site is not conducive to proper plant growth, the Landscape Contractor shall import the required amount. Landscape Contractor is to submit samples of the imported soil and/or soil amendments to the Landscape Architect. The topsoil shall be a sandy loam, free of all weeds and debris inimical to lawn or plant growth.

Landscaping shall include finished grades and even distribution of topsoil to meet planting requirements. Grades and slopes shall be as indicated. Planting bed grades shall be approximately 3" below adjacent walks, paving, finished grade lines, etc., to allow for bark application. Finish grading shall remove all depressions or low areas to provide positive drainage throughout the area.

PLANTING SPECIFICATIONS:

HERBICIDES: Prior to soil preparation, all areas showing any undesirable weed or grass growth shall be treated with Round–up in strict accordance with the manufacturer's instructions.

SOIL PREPARATION: Work all areas by rototilling to a minimum depth of 8". Remove all stones (over 1½" size), sticks, mortar, large clumps of vegetation, roots, debris, or extraneous matter turned up in working. Soil shall be of a homogeneous fine texture. Level, smooth and lightly compact area to plus or minus .10 of required grades.

In groundcover areas add 2" of compost (or as approved) and till in to the top 6" of soil.

PLANTING HOLE: Lay out all plant locations and excavate all soils from planting holes to 2 1/2 times the root ball or root system width. Loosen soil inside bottom of plant hole. Dispose of any "subsoil" or debris from excavation. Check drainage of planting hole with water, and adjust any area showing drainage problems.

SOIL MIX: Prepare soil mix in each planting hole by mixing:
2 part native topsoil (no subsoil)
1 part compost (as approved)

Thoroughly mix in planting hole and add fertilizers at the following rates:
Small shrubs – 1/8 lb./ plant
Shrubs – 1/3 to 1/2 lb./ plant
Trees – 1/3 to 1 lb./ plant

FERTILIZER: For trees and shrubs use Commercial Fertilizer "A" Inorganic (5–4–3) with micro–nutrients and 50% slow releasing nitrogen. For initial application in fine seed lawn areas use Commercial Fertilizer "B" (8–16–8) with micro–nutrients and 50% slow–releasing nitrogen. For lawn maintenance use Commercial Fertilizer "C" (22–16–8) with micro–nutrients and 50% slow–releasing nitrogen. DO NOT apply fertilizer to Water Quality Swale.

PLANTING TREES AND SHRUBS: Plant upright and face to give best appearance or relationship to adjacent plants and structures. Place 6" minimum, lightly compacted layer of prepared planting soil under root system. Loosen and remove twine binding and burlap from top 1/2 of root balls. Cut off cleanly all broken or frayed roots, and spread roots out. Stagger Plants in rows. Backfill planting hole with soil mix while working each layer to eliminate voids.

When approximately 2/3 full, water thoroughly, then allow water to soak away. Place remaining backfill and dish surface around plant to hold water. Final grade should keep root ball slightly above surrounding grade, not to exceed 1". Water again until no more water is absorbed. Initial watering by irrigation system is not allowed.

STAKING OF TREES: Stake or guy all trees. Stakes shall be 2" X 2" (nom.) quality tree stakes with point. They shall be of Douglas Fir, clear and sturdy. Stake to be minimum 2/3 the height of the tree, not to exceed 8'–0". Drive stake firmly 1'–6" below the planting hole. Tree ties for deciduous trees shall be "Chainlock" (or better). For Evergreen trees use "Cro–Strait" Tree Ties (or a reinforced rubber hose and guy wires) with guy wires of a minimum 2 strand twisted 12 ga. wire. Staking and guying shall be loose enough to allow movement of tree while holding tree upright.

MULCHING OF PLANTINGS: Mulch planting areas with dark, aged, medium grind fir or hemlock bark (aged at least 6 months) to a depth of 2" in ground cover areas and 2½" in shrub beds. Apply evenly, not higher than grade of plant as it came from the nursery, and rake to a smooth finish. Water

ROUGH SEED AREA: In rough seeded area, establish an evenly graded seedbed. Sow seed with a mechanical spreader at the uniform rates as noted below. Rake seed lightly to provide cover.

SEED: Bluetag grass seed conforming to applicable State laws. No noxious weed seeds. Submit Guaranteed analysis.
Rough Seed Mix: To Contain: 60% Perennial Ryegrass, 15% Eureka Hard Fescue, and 20% Herbaceous Plants and Clover (Hobbs and Hopkins Pro–Time 705 PDX, or approved equal). Sow at 2 lbs. Per 1,000 sq.ft.

MAINTENANCE OF SEEDED AREAS:
Rough Seed Areas: Rough seed areas shall be maintained by watering, mowing, reseeding, and weeding for a minimum of 60 days after seeding.

GENERAL MAINTENANCE: Protect and maintain work described in these specifications against all defects of materials and workmanship, through final acceptance. Replace plants not in normal healthy condition at the end of this period. Water, weed, cultivate, mulch, reset plants to proper grade or upright position, remove dead wood and do necessary standard maintenance operations. Irrigate when necessary to avoid drying out of plant materials, and to promote healthy growth.

CLEAN–UP: At completion of each division of work all extra material, supplies, equipment, etc., shall be removed from the site. All walks, paving, or other surfaces shall be swept clean, mulch areas shall have debris removed and any soil cleared from surface. All areas of the project shall be kept clean, orderly and complete.

CITY OF WILSONVILLE WATER QUALITY FACILITY SPECIFICATIONS:

SOIL PREPARATION: Remove all nonnative plant materials, including plants, roots, and seeds prior to adding topsoils. Till the sub–grade in these areas to a depth of at least four inches. Water Quality Swale area shall be over–excavated and filled to final grade with 4 iches of topsoil in areas where topsoil has been removed or not adequate. Topsoil shall be tested for the following characteristics provide a good growing medium:
A) Texture
B) Fertility
C) Microbial

Incorporate 2" garden compost, free of conventional fertilizer, to a depth of 4" on all areas of the water quality facility. DO NOT apply fertilizer to the Water Quality Facility.

TIMING: Plantings should be installed between February 1 and May 1 or between October 1 and November 15. Bare root stock shall be installed only from December 15 through April 15. When plantings must be installed outside these times, additional measures may be needed to assure survival.

EROSION CONTROL: Grading, soil preparation, and seeding shall be performed during optimal weather conditions and at low flow levels to minimize sediment impacts. Site disturbance shall be minimized and desirable vegetation retained, where possible. Slopes shall be graded to support the establishment of vegetation. Where seeding is used for erosion control, an appropriate native grass, Regreen (or its equivalent), or sterile wheat shall be used to stabilize slopes until permanent vegetation is established. Biodegradable fabrics (coir, coconut or approved jute matting (minimum 1/4" square holes) may be used to stabilize slopes and channels. Fabrics such as burlap may be used to secure plant plugs in place and to discourage floating upon inundation.

A biodegradable Erosion Control Matting shall be placed over the topsoil throughout the swale cross section, fabric shall be held in place in accordance with the manufacturer's installation requirements. Use high density jute matting in the treatment area (Geojute Plus or approved equal). In all other areas use low density jute matting (Econojute or approved equal). Landscaping shall include finished grades and even distribution of topsoil to meet planting requirements. Grades and slopes shall be as indicated on civil plans. Finish grading shall remove all depressions or low areas to provide positive drainage throughout the area.

HERBICIDES: Removal of invasive non–native species is required by hand for the entire wetland buffer area. If necessary, excessive weed growth may be treated with Rodeo or Garlon 3–A (or approved equals) in strict accordance with the manufacturer's instructions.

FERTILIZER: Do not apply fertilizer to any plantings within the Wetland Buffer or Water Quality Facilities.

PLANTING TREES AND SHRUBS: Plant upright and face to give best appearance or relationship to adjacent plants and structures. Loosen and remove twine binding and burlap from top one–half of root balls. Cut off cleanly all broken or frayed roots, and spread roots out. Stagger Plants in rows. Backfill planting hole with native soil mix while working each layer to eliminate voids.

MULCHING: Trees, shrubs, and groundcovers planted in upland areas shall be mulched a minimum of 3" in depth and 18" in diameter, to retain moisture and discourage weed growth around newly installed plant material. Appropriate mulches are made from composted bark or leaves that have not been chemically treated. The use of mulch in frequently inundated areas shall be limited, to avoid any possible water quality impacts including the leaching of tannins and nutrients, and the migration of mulch into waterways.

WILDLIFE PROTECTION: Appropriate measures shall be taken to discourage wildlife browsing. Biodegradable plastic mesh tubing, or other substitute approved by the City, shall be placed around individual trees and shrubs to prevent browsing by wildlife, including beaver, nutria, deer, mice and voles.

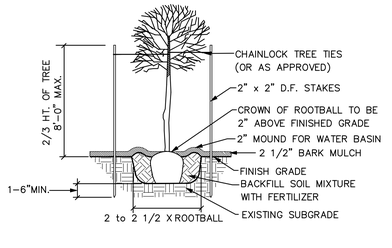
IRRIGATION: Is to be provided as per a separate plan design/build by Landscape Contractor. Project is to be irrigated by an automatic, underground system, which will provide full coverage for all plant material. Guarantee system for a minimum one year.

MAINTENANCE: The permitee is responsible for the maintenance of this facility for a minimum of two years following the acceptance of the facility by the City of Wilsonville. The City's authorized representative shall inspect the condition of all landscaping located within the water quality facility, at the end of the of the firest year of the post–construction period. The authorized representative shall provide a report describing any deficiencies to the applicant.

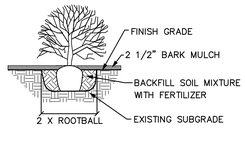
If, at any time during the warranty period, the landscaping falls below 90% survival of trees and shrubs or 90% aerial coverage, the Owner shall remove the undesirable vegetation and reinstall all deficient planting at the next appropriate time. Prior to replanting, the cause of the plant loss shall be determined and corrected. The two–year maintenance period shall begin again from the date of replanting.

Water Quality Facility is to be kept free of debris and maintained to insure water flow and proper functioning. Protect and maintain work described in these specifications against all defects of materials and workmanship, through final acceptance.

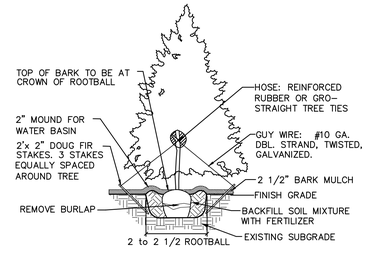
CLEAN–UP: At completion of each division of work all extra material, supplies, equipment, etc., shall be removed from the site. All walks, paving, or other surfaces shall be swept clean, mulch areas shall have debris removed and any soil cleared from surface. All areas of the project shall be kept clean, orderly and complete.



DECIDUOUS TREE PLANTING DETAIL
NOT TO SCALE



SHRUB PLANTING DETAIL
NOT TO SCALE



EVERGREEN TREE STAKING DETAIL
NOT TO SCALE

SITE DESIGN REVIEW

no.	revision	date
1	Site Design Review Resubmittal #1	

16–066 job no.
EH drawn
JLO checked
8–4–17 date

REGISTERED LANDSCAPE ARCHITECT JOEL L. OLSON OREGON EXP. 12/31/17

DWFRITZ Renovation
9900 SW Boeckman Rd.
Wilsonville, OR 97070

SITE PLAN

LANCE MUELLER & ASSOCIATES
ARCHITECTS · AIA
130 LAKESIDE · SEATTLE, WA 98122 · 206 325 2553

sheet
L2.0

TREE PROTECTION SPECIFICATIONS

1. **FENCING.** TREES TO REMAIN ON SITE SHALL BE PROTECTED BY INSTALLATION OF TREE PROTECTION FENCING TO PREVENT INJURY TO TREE TRUNKS OR ROOTS, OR SOIL COMPACTION WITHIN THE ROOT PROTECTION AREA, WHICH GENERALLY COINCIDES WITH TREE DRIPLINES OR THE LIMITS OF EXISTING INFRASTRUCTURE THAT WILL REMAIN. FENCES SHALL BE A MINIMUM 5-FOOT HIGH STEEL ON CONCRETE BLOCKS OR POSTS DRIVEN INTO THE GROUND. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE PROJECT ARBORIST PRIOR TO OPENING OR MAKING ADJUSTMENTS TO TREE PROTECTION FENCING.
2. **TREE PROTECTION ZONE.** WITHOUT AUTHORIZATION FROM THE PROJECT ARBORIST, NONE OF THE FOLLOWING SHALL OCCUR BENEATH THE DRIPLINE OF ANY PROTECTED TREE:
   a) GRADE CHANGE OR CUT AND FILL;
   b) NEW IMPERVIOUS SURFACES;
   c) UTILITY OR DRAINAGE FIELD PLACEMENT;
   d) STAGING OR STORAGE OF MATERIALS AND EQUIPMENT; OR
   e) VEHICLE MANEUVERING.

   THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE PROJECT ARBORIST IN A TIMELY MANNER PRIOR TO WORKING BENEATH PROTECTED TREE DRIPLINES. ROOT PROTECTION ZONES MAY BE ENTERED FOR TASKS LIKE SURVEYING, MEASURING, AND, SAMPLING. FENCES MUST BE CLOSED UPON COMPLETION OF THESE TASKS.
3. **TREE REMOVAL.** THE SEVEN TREES TO BE REMOVED HAVE BEEN IDENTIFIED WITH NUMBERED ALUMINUM TAGS AND YELLOW PLASTIC FLAGGING (#1, #2, #7, #8, #31, #62 AND #63). THE STUMPS FROM TREES #7 AND #31 SHALL EITHER BE CUT FLUSH WITH THE GROUND SURFACE AND REMAIN IN PLACE, REMOVED BY STUMP GRINDING, OR EXTRACTED FROM THE GROUND UNDER ARBORIST SUPERVISION, IN ORDER TO HELP MINIMIZE IMPACTS TO THE LIKELY INTERCONNECTED ROOTS OF NEARBY PROTECTED TREES. THE STUMP AND BUTTRESS ROOTS FROM TREE #8 SHALL BE EXTRACTED FROM THE GROUND UNDER ARBORIST SUPERVISION.
4. **PRUNING.** PRUNING MAY BE NEEDED AT TREES #3, #4, #5 AND #6 TO PROVIDE FOR BUILDING CLEARANCE, AND ELSEWHERE TO PROVIDE OVERHEAD CLEARANCE AND REMOVE DEAD AND DEFECTIVE BRANCHES FOR SAFETY. THE PROJECT ARBORIST CAN HELP IDENTIFY WHERE PRUNING IS NECESSARY ONCE TREES RECOMMENDED FOR REMOVAL HAVE BEEN REMOVED AND THE SITE IS PREPARED FOR CONSTRUCTION. TREE REMOVAL AND PRUNING SHALL BE PERFORMED BY A QUALIFIED TREE SERVICE.
5. **EXCAVATION.** EXCAVATION BENEATH THE DRIPLINE OF PROTECTED TREES SHALL BE AVOIDED IF ALTERNATIVES ARE FEASIBLE. EXCAVATION IMMEDIATELY ADJACENT TO ROOTS LARGER THAN 2-INCHES IN DIAMETER BENEATH THE DRIPLINE OF RETAINED TREES SHALL BE BY HAND OR OTHER NON-INVASIVE TECHNIQUES TO ENSURE THAT ROOTS ARE NOT DAMAGED. WHERE FEASIBLE, MAJOR ROOTS SHALL BE PROTECTED BY TUNNELING OR OTHER MEANS TO AVOID DESTRUCTION OR DAMAGE. EXCEPTIONS CAN BE MADE IF, IN THE OPINION OF THE PROJECT ARBORIST, UNACCEPTABLE DAMAGE WILL NOT OCCUR TO THE TREE. WHERE SOIL GRADE CHANGES AFFECT THE ROOT PROTECTION AREA, THE GRADE LINE SHOULD BE MEANDERED WHEREVER PRACTICABLE. THIS WILL REQUIRE ON-SITE COORDINATION TO ENSURE A REASONABLE BALANCE BETWEEN ENGINEERING, CONSTRUCTION, AND THE NEED FOR TREE PROTECTION.
6. **SURFACING.** WHERE NEW SURFACING IS PROPOSED BENEATH THE DRIPLINE OF PROTECTED TREES, COORDINATE WITH THE PROJECT ARBORIST TO MONITOR CONSTRUCTION. AVOID EXCAVATION AND USE A MODIFIED PROFILE TO BUILD UP FROM EXISTING GRADE (FIGURE 1). THE PROFILE INCLUDES A LAYER OF PERMEABLE GEOTEXTILE FABRIC ON THE GROUND SURFACE AND CLEAN CRUSHED ROCK TO RAISE THE GRADE AS NEEDED. SURFACING MAY INCLUDE ASPHALT, CONCRETE, OR OTHER MATERIALS.

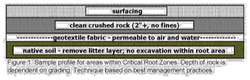


Figure 1. Sample profile for areas within Critical Root Zones. Depth of rock is dependent on grading. Technique based on best management practices.

7. **LANDSCAPING.** FOLLOWING CONSTRUCTION AND WHERE LANDSCAPING IS DESIRED, APPLY APPROXIMATELY 3-INCHES OF MULCH BENEATH THE DRIPLINE OF PROTECTED TREES IN A MINIMUM 5-FOOT RADIUS AROUND TREE TRUNKS; DO NOT PILE MULCH DIRECTLY AGAINST TREE TRUNKS. SHRUBS AND GROUND COVER PLANTS S MAY BE PLANTED WITHIN TREE PROTECTION AREAS. IF IRRIGATION IS USED, USE DRIP IRRIGATION OR LOW FLOW EMITTERS INSTALLED AT NATIVE GRADE (NO TRENCHING) ONLY BENEATH THE DRIPLINES OF PROTECTED TREES. LANDSCAPING SHALL BE PERFORMED BY HAND AND WITH HAND TOOLS ONLY BENEATH PROTECTED TREE DRIPLINES; ADJUST THE LOCATION OF PLANTS TO AVOID TREE ROOT IMPACTS.
8. **QUALITY ASSURANCE.** THE PROJECT ARBORIST SHOULD SUPERVISE PROPER EXECUTION OF THIS PLAN ON-CALL DURING CONSTRUCTION ACTIVITIES THAT COULD ENCROACH ON RETAINED TREES. TREE PROTECTION SITE INSPECTION MONITORING REPORTS SHOULD BE PROVIDED TO THE CLIENT AND CITY FOLLOWING EACH SITE VISIT PERFORMED DURING CONSTRUCTION.

LEGEND:

SYMBOL	DESCRIPTION
	TREES TO BE REMOVED
	TREES TO REMAIN
1	TREE IDENTIFICATION NUMBER See Arborist Report
	TREE PROTECTION FENCING

STAND 1
STAND 2
STAND 3
STAND 4

CONTRACTOR SHALL COORDINATE WITH THE PROJECT ARBORIST IN A TIMELY MANNER PRIOR TO WORKING IN THIS AREA; CONSTRUCTION BENEATH THE DRIPLINE SHALL BE PERFORMED UNDER ARBORIST SUPERVISION

PINE 42"
Oak 21"
PINE 116"
Maple 20"
Oak 17"
Maple 15"
Oak 17"
DFir 24"
Maple 12"
Cherry 12"
DFir 14"
Decid 12"
DFir 15"
Maple 11"
DFir 13"
Maple 13"
Oak 12"
DFir 14"
Maple 10"
CEDAR 18"
CEDAR 7"
16"

TREE PROTECTION PLAN

SCALE 1" = 40'-0"

SITE DESIGN REVIEW

1 Site Design Review Resubmittal #1 — 8-4-17

16-066 job no. | EH drawn | JLO checked | 8-4-17 date

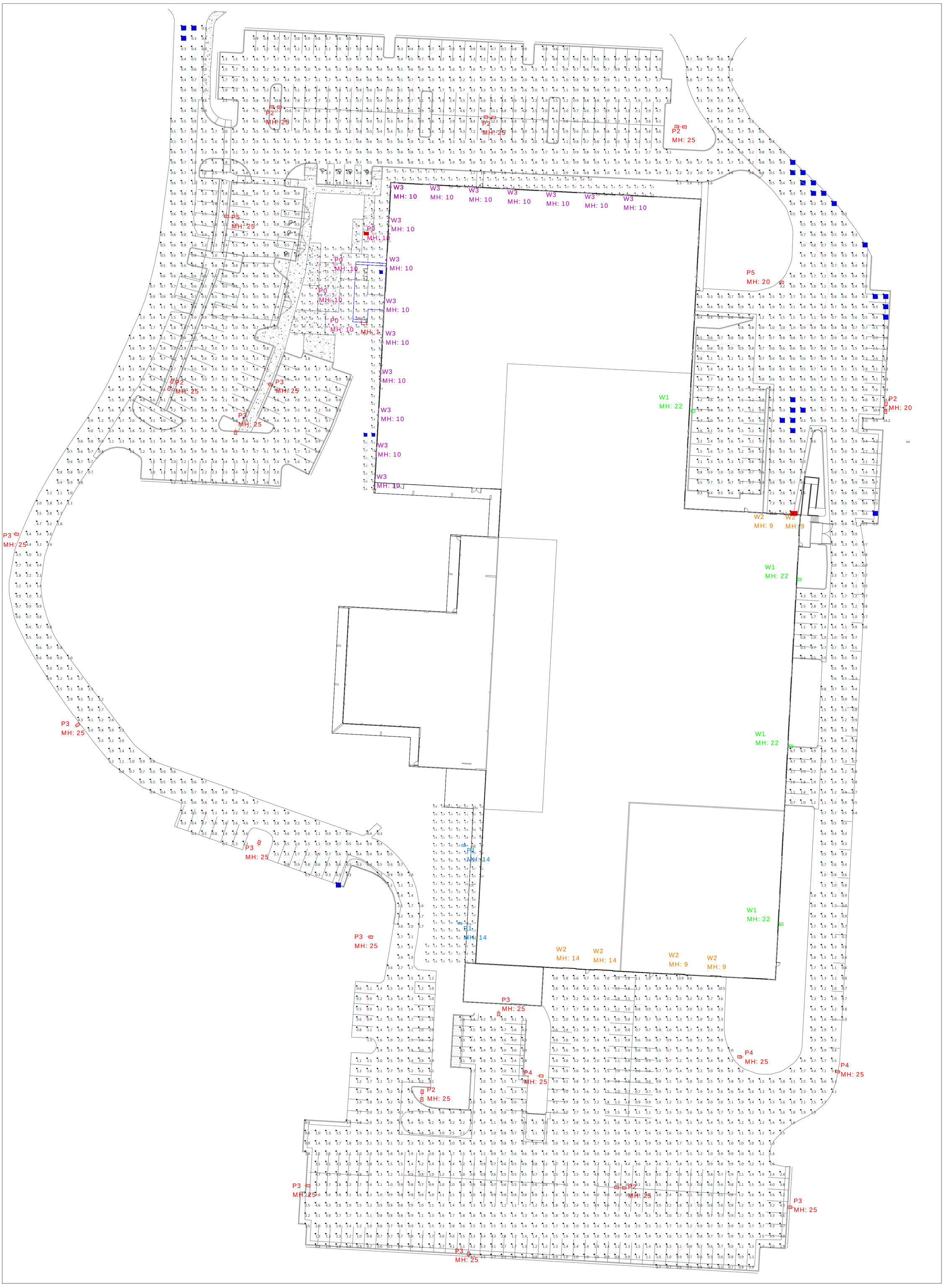
REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT — JANET L. OTTEN — OREGON — EXP. 12/31/17

DWFRITZ Renovation
9900 SW Boeckman Rd.
Wilsonville, OR 97070

LANCE MUELLER & ASSOCIATES
ARCHITECTS · AIA
130 LAKESIDE · SEATTLE, WA 98122 · 206 325 2553

SITE PLAN

sheet L3.0

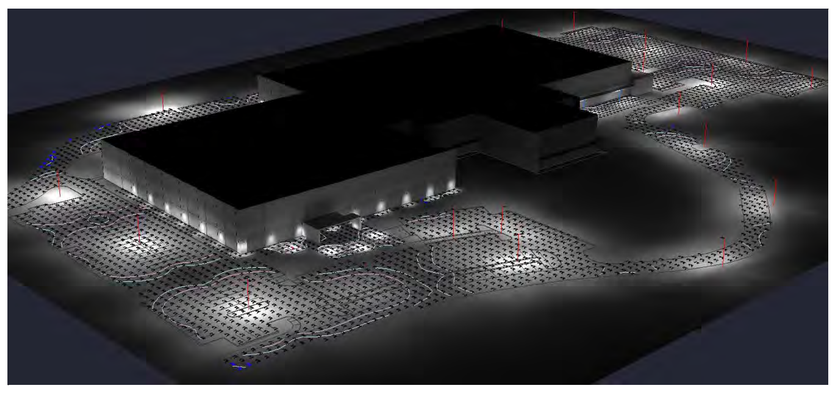


Scale: 1 inch= 38 Ft.

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
EXTERIOR	Illuminance	Fc	1.90	18.1	0.2	9.50	90.50
Pedestrian	Illuminance	Fc	2.79	91.6	0.1	27.90	916.00

Standard Luminaire Schedule						
Symbol	Qty	Label	LLF	Description	Lum. Watts	Lum. Lumens
	4	P0	0.900	TECH_700OCTUR12SCIUNV830C	60.4	4516
	2	P1	0.900	Visionaire_VMX-1-T3-32LC-5-4K-UNV	54.8	6776
	7	P2	0.900	Visionaire_VMX-1-T4-96LC-7-5K-UNV	214	21120
	10	P3	0.900	Visionaire_VMX-1-T3-64LC-7-4K-UNV	145.1	15701
	3	P4	0.900	Visionaire_VMX-1-T4-96LC-7-5K-UNV	214	21120
	2	P5	0.900	Visionaire_VMX-1-T5W-64LC-7-4K-UNV	145.1	14996
	4	W1	0.900	Visionaire_VMX-1-T4-64LC-7-4K-UNV	145.1	14301
	6	W2	0.900	ILP_262974 ,MOD#_WPCM-60WLED-UNIV	66.4	5069
	16	W3	0.900	TECH_700WTUR18SCC8401201	15.3	571
	1	L1	0.900	DesignP_RIO 1_4 D [2800K 16W 24Vdc]	16	336

Isoline Legend	
Illuminance (Fc)	
Color	Value
	0.2
	0.6
	0.9



Note:

1.Mounting height estimated Various 'MH'
2.Reflectance used 26% equivalent to asphalt
3.Lighting loss factor applied, initial values will be higher
4.Calculation zone located ground

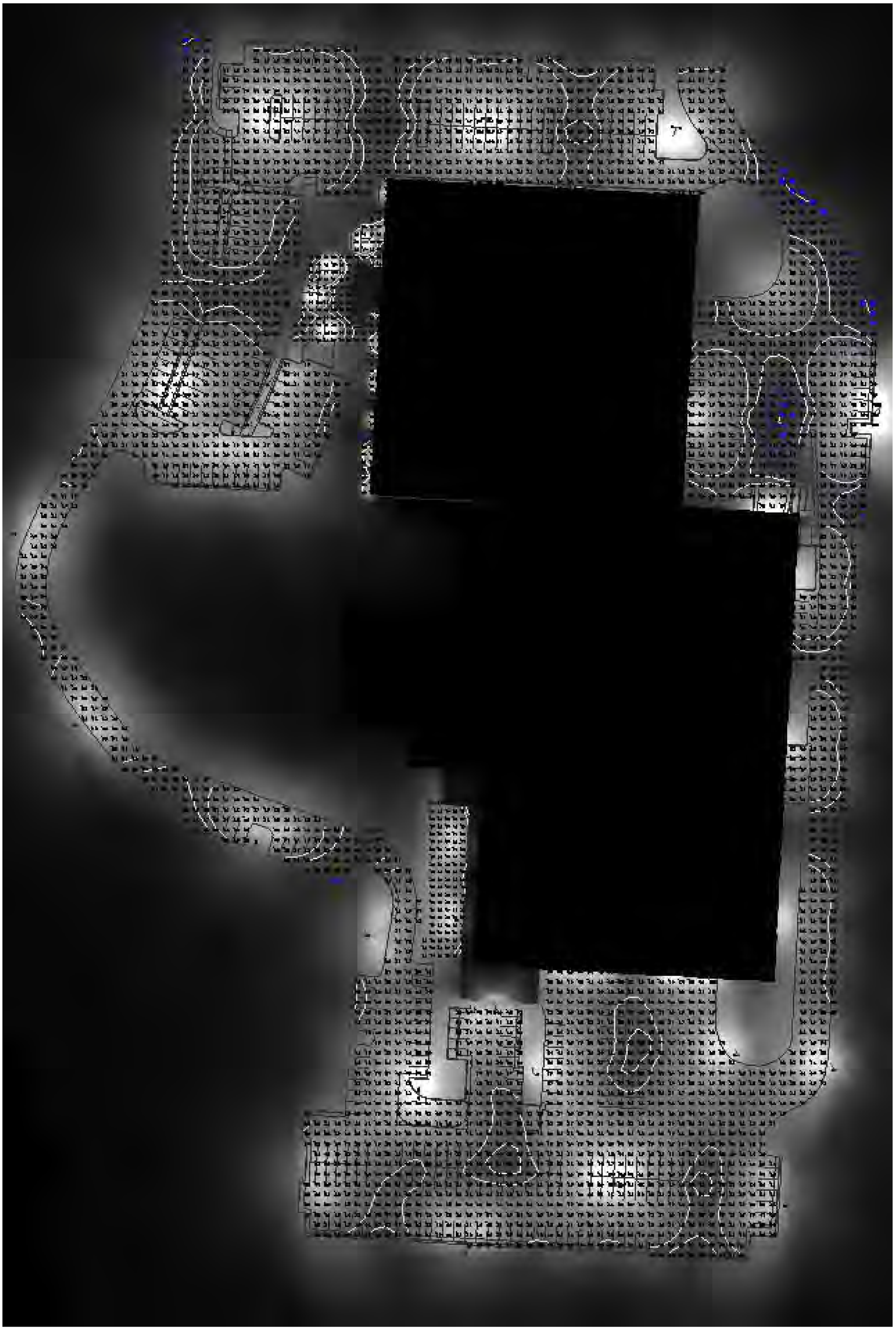
1 of 1 Sheet

Date:	2/27/2017
Drawn by:	Ada Vargas
Scale:	NA

PROJECT

SITE

SEATAC LIGHTING & CONTROLS, LLC
4439 S. 134th Pl. Bldg. E Seattle, WA 98168
FOR ALL DRAWING INQUIRIES PLEASE CONTACT SEA TAC LIGHTING 206.575.6865



Date:	2/27/2017
Drawn by:	Ada Vargas
Scale:	NA

Sheet 1 of 1

PROJECT

SITE

SEATAC LIGHTING & CONTROLS, LLC
4439 S. 134th Pl. Bldg. E Seattle, WA 98168
FOR ALL DRAWING INQUIRIES PLEASE CONTACT SEA TAC LIGHTING 206.575.6865

GENERAL NOTES

1. SURVEY PROVIDED BY ANDY PARIS AND ASSOCIATES, INC., DATED JANUARY 19TH, 2017. ELEVATIONS ARE BASED ON CLACKAMAS COUNTY VERTICAL DATUM.

2. CONSTRUCTION LAYOUT (ALL ACTUAL LINES AND GRADES) SHALL BE STAKED BY A PROFESSIONAL SURVEYOR, REGISTERED IN THE STATE OF OREGON, BASED ON COORDINATES, DIMENSIONS, BEARINGS, AND ELEVATIONS, AS SHOWN, ON THE PLANS.

3. PROJECT CONTROL SHALL BE FIELD VERIFIED AND CHECKED FOR RELATIVE HORIZONTAL POSITION PRIOR TO BEGINNING CONSTRUCTION LAYOUT.

4. PROJECT CONTROL SHALL BE FIELD VERIFIED AND CHECKED FOR RELATIVE VERTICAL POSITION BASED ON THE BENCHMARK STATED HEREON, PRIOR TO BEGINNING CONSTRUCTION LAYOUT.

5. WHEN DIMENSIONS AND COORDINATE LOCATIONS ARE REPRESENTED – DIMENSIONS SHALL HOLD OVER COORDINATE LOCATION. NOTIFY THE CIVIL ENGINEER OF RECORD IMMEDIATELY UPON DISCOVERY.

6. BUILDING SETBACK DIMENSIONS FROM PROPERTY LINES SHALL HOLD OVER ALL OTHER CALLOUTS. PROPERTY LINES AND ASSOCIATED BUILDING SETBACKS SHALL BE VERIFIED PRIOR TO CONSTRUCTION LAYOUT.

7. CONTRACTOR SHALL PRESERVE AND PROTECT FROM DAMAGE ALL EXISTING MONUMENTATION DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING AND PAYING FOR THE REPLACEMENT OF ANY MONUMENTS DAMAGED OR REMOVED DURING CONSTRUCTION. NEW MONUMENTS SHALL BE REESTABLISHED BY A LICENSED SURVEYOR.

8. SOME SITE DEMOLITION AND UTILITY RELOCATION HAS BEEN PERFORMED. SURVEY MAY NOT BE COMPLETE OR ACCURATE. CONTRACTOR TO VERIFY EXISTING SITE CONDITIONS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ENGINEER PRIOR TO BEGINNING CONSTRUCTION.

9. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THESE PLANS, THE PROJECT SPECIFICATIONS AND THE APPLICABLE REQUIREMENTS OF THE 2015 OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE 2014 OREGON PLUMBING SPECIALTY CODE AND REQUIREMENTS OF THE CITY OF WILSONVILLE.

10. THE COMPLETED INSTALLATION SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES, ORDINANCES AND REGULATIONS. ALL PERMITS, LICENSES AND INSPECTIONS REQUIRED BY THE GOVERNING AUTHORITIES FOR THE EXECUTION AND COMPLETION OF WORK SHALL BE SECURED BY THE CONTRACTOR PRIOR TO COMMENCING CONSTRUCTION.

11. ATTENTION: OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THE RULES BY CALLING THE CENTER. (NOTE: THE TELEPHONE NUMBER FOR THE OREGON UTILITY NOTIFICATION CENTER IS (503) 232-1987). EXCAVATORS MUST NOTIFY ALL PERTINENT COMPANIES OR AGENCIES WITH UNDERGROUND UTILITIES IN THE PROJECT AREA AT LEAST 48 BUSINESS-DAY HOURS, BUT NOT MORE THAN 10 BUSINESS DAYS PRIOR TO COMMENCING AN EXCAVATION, SO UTILITIES MAY BE ACCURATELY LOCATED.

12. THE LOCATION OF EXISTING UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATION ONLY AND ARE NOT GUARANTEED TO BE COMPLETE OR ACCURATE. CONTRACTOR SHALL VERIFY ELEVATIONS, PIPE SIZE, AND MATERIAL TYPES OF ALL UNDERGROUND UTILITIES PRIOR TO COMMENCING WITH CONSTRUCTION AND SHALL BRING ANY DISCREPANCIES TO THE ATTENTION OF AAI ENGINEERING, 72 HOURS PRIOR TO START OF CONSTRUCTION TO PREVENT GRADE AND ALIGNMENT CONFLICTS.

13. THE ENGINEER OR OWNER IS NOT RESPONSIBLE FOR THE SAFETY OF THE CONTRACTOR OR HIS CREW. ALL O.S.H.A. REGULATIONS SHALL BE STRICTLY ADHERED TO IN THE PERFORMANCE OF THE WORK.

14. TEMPORARY AND PERMANENT EROSION CONTROL MEASURES SHALL BE IMPLEMENTED. THE CONTRACTOR SHALL ADHERE TO CITY OF WILSONVILLE FOR MINIMUM EROSION CONTROL MEASURES. THE ESC FACILITIES SHOWN IN THESE PLANS ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT LEAVE THE SITE.

15. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL ROADWAYS, KEEPING THEM CLEAN AND FREE OF CONSTRUCTION MATERIALS AND DEBRIS, AND PROVIDING DUST CONTROL AS REQUIRED.

16. CONTRACTOR SHALL MAINTAIN ALL UTILITIES TO EXISTING BUILDINGS AT ALL TIMES DURING CONSTRUCTION.

17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND SCHEDULING ALL WORK WITH THE OWNER.

18. NOTIFY THE CITY INSPECTOR 72 HOURS BEFORE STARTING WORK. A PRE-CONSTRUCTION MEETING WITH THE OWNER, THE OWNER'S ENGINEER, CONTRACTOR AND THE CITY REPRESENTATIVE SHALL BE REQUIRED.

CONSTRUCTION NOTES

GENERAL

1. ACTUAL LINES AND GRADES SHALL BE STAKED BY A PROFESSIONAL SURVEYOR, REGISTERED IN THE STATE OF OREGON, BASED ON DIMENSIONS, ELEVATIONS AND BEARINGS AS SHOWN ON THE PLANS.

2. SUBGRADE AND TRENCH BACKFILL SHALL BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-698. FLOODING OR JETTING THE BACKFILLED TRENCHES WITH WATER IS NOT PERMITTED.

3. SPECIAL INSPECTION REQUIRED FOR ALL COMPACTION TESTING.

DEMOLITION

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION AND DISPOSAL OF EXISTING AC, CURBS, SIDEWALKS AND OTHER SITE ELEMENTS WITHIN THE SITE AREA IDENTIFIED IN THE PLANS.

2. EXCEPT FOR MATERIALS INDICATED TO BE STOCKPILED OR TO REMAIN ON OWNER'S PROPERTY, CLEARED MATERIALS SHALL BECOME CONTRACTOR'S PROPERTY, REMOVED FROM THE SITE, AND DISPOSED OF PROPERLY.

3. ITEMS INDICATED TO BE SALVAGED SHALL BE CAREFULLY REMOVED AND DELIVERED STORED AT THE PROJECT SITE AS DIRECTED BY THE OWNER.

4. ALL LANDSCAPING, PAVEMENT, CURBS AND SIDEWALKS, BEYOND THE IDENTIFIED SITE AREA, DAMAGED DURING THE CONSTRUCTION SHALL BE REPLACED TO THEIR ORIGINAL CONDITION OR BETTER.

5. CONCRETE SIDEWALKS SHOWN FOR DEMOLITION SHALL BE REMOVED TO THE NEAREST EXISTING CONSTRUCTION JOINT.

6. SAWCUT STRAIGHT MATCHLINES TO CREATE A BUTT JOINT BETWEEN THE EXISTING AND NEW PAVEMENT.

UTILITIES

1. ADJUST ALL INCIDENTAL STRUCTURES, MANHOLES, VALVE BOXES, CATCH BASINS, FRAMES AND COVERS, ETC. TO FINISHED GRADE.

2. CONTRACTOR SHALL ADJUST ALL EXISTING AND/OR NEW FLEXIBLE UTILITIES (WATER, TV, TELEPHONE, ELEC., ETC.) TO CLEAR ANY EXISTING OR NEW GRAVITY DRAIN UTILITIES (STORM DRAIN, SANITARY SEWER, ETC.) IF CONFLICT OCCURS.

3. CONTRACTOR SHALL COORDINATE WITH PRIVATE UTILITY COMPANIES FOR THE INSTALLATION OF OR ADJUSTMENT TO GAS, ELECTRICAL, POWER AND TELEPHONE SERVICE.

4. BEFORE BACKFILLING ANY SUBGRADE UTILITY IMPROVEMENTS CONTRACTOR SHALL SURVEY AND RECORD MEASUREMENTS OF EXACT LOCATION AND DEPTH AND SUBMIT TO ENGINEER AND OWNER.

STORM AND SANITARY

1. CONNECTIONS TO EXISTING STORM AND SANITARY SEWERS SHALL CONFORM TO THE 2015 OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION, SECTION 00490, "WORK ON EXISTING SEWERS AND STRUCTURES".

2. BEGIN LAYING STORM DRAIN AND SANITARY SEWER PIPE AT THE LOW POINT OF THE SYSTEM, TRUE TO GRADE AND ALIGNMENT INDICATED WITH UNBROKEN CONTINUITY OF INVERT. THE CONTRACTOR SHALL ESTABLISH LINE AND GRADE FOR THE STORM AND SANITARY SEWER PIPE USING A LASER.

3. ALL ROOF DRAIN AND CATCH BASIN LEADERS SHALL HAVE A MINIMUM SLOPE OF 2 PERCENT UNLESS NOTED OTHERWISE IN THE PLANS.

WATER

1. ALL WATER AND FIRE PROTECTION PIPE SHALL HAVE A MINIMUM 36-INCH COVER TO THE FINISH GRADE.

2. ALL WATER AND FIRE PRESSURE FITTINGS SHALL BE PROPERLY RESTRAINED WITH THRUST BLOCKS PER DETAIL.

3. ALL WATER MAIN / SANITARY SEWER CROSSINGS SHALL CONFORM TO THE OREGON STATE HEALTH DEPARTMENT REGULATIONS, CHAPTER 333.

EARTHWORKS

1. CONTRACTOR SHALL PREVENT SEDIMENTS AND SEDIMENT LADEN WATER FROM ENTERING THE STORM DRAINAGE SYSTEM.

2. TRENCH BEDDING AND BACKFILL SHALL BE AS SHOWN ON THE PIPE BEDDING AND BACKFILL DETAIL, THE PROJECT SPECIFICATIONS AND AS REQUIRED IN THE SOILS REPORT. FLOODING OR JETTING THE BACKFILLED TRENCHES WITH WATER WILL NOT BE PERMITTED.

PAVING

1. SEE ARCHITECTURAL PLANS FOR SIDEWALK FINISHING AND SCORING PATTERNS.

MATERIAL NOTES

1. GENERAL: MATERIALS SHALL BE NEW. THE USE OF MANUFACTURER'S NAMES, MODELS, AND NUMBERS IS INTENDED TO ESTABLISH STYLE, QUALITY, APPEARANCE, AND USEFULNESS. PROPOSED SUBSTITUTIONS WILL REQUIRE WRITTEN APPROVAL FROM THE ENGINEER ON RECORD PRIOR TO INSTALLATION.

2. STORM AND SANITARY SEWER PIPING SHALL BE PVC PIPE, DUCTILE IRON PIPE, REINFORCED CONCRETE PIPE (RCP), OR HIGH DENSITY POLYETHYLENE (HDPE) PIPE AS INDICATED IN THE PLANS. PIPES WITH LESS THAN 2' OF COVER SHALL BE C900/C905 PVC, HDPE OR DUCTILE IRON PIPE.

3. PRIVATE FIRE PROTECTION MAINS 4-INCH DIAMETER AND LARGER SHALL BE DUCTILE IRON PIPE AS INDICATED IN THE PLANS.

4. CONCRETE FOR CURBS, SIDEWALK AND DRIVEWAYS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,300 PSI AT 28 DAYS.

SEPARATION STATEMENT

ALL WATER AND FIRE PROTECTION MAIN CROSSINGS SHALL CONFORM TO THE OREGON STATE HEALTH DEPARTMENT, CHAPTER 333. WATER MAINS SHALL CROSS OVER SANITARY SEWERS WITH A 18" MINIMUM CLEARANCE BETWEEN OUTSIDE DIAMETERS OF PIPE WITH ALL PIPE JOINTS EQUIDISTANT FROM CROSSING. HORIZONTAL SEPARATION BETWEEN WATER MAINS AND SANITARY SEWERS IN PARALLEL INSTALLATIONS SHALL BE 10'. MAINTAIN 12" MINIMUM VERTICAL DISTANCE FOR ALL OTHER UTILITY CROSSINGS AND 12" HORIZONTAL PARALLEL DISTANCE. IN CASES WHERE IT IS NOT POSSIBLE TO MAINTAIN THE MINIMUM 10' HORIZONTAL SEPARATION, THE WATER MAIN SHALL BE LAID ON A SEPARATE SHELF IN THE TRENCH 18" INCHES ABOVE THE SEWER.

VEGETATED STORMWATER FACILITY NOTE

1. SUCCESSFUL CONSTRUCTION OF THE VEGETATED STORMWATER FACILITY DEPEND ON PROPER CONSTRUCTION SEQUENCING, MATERIALS, INSTALLATION, PROTECTION OF SUBGRADE AND EROSION CONTROL.

2. CONTRACTOR SHALL SETUP A PRE-CONSTRUCTION MEETING WITH CIVIL ENGINEER TO SPECIFICALLY DISCUSS THESE ITEMS. CONTACT CRAIG HARRIS WITH AAI ENGINEERING 503-620-3030.

no.	revision	date
1	SITE DESIGN REVIEW RESUBMITTAL #2	4/4/17
2	SITE DESIGN REVIEW RESUBMITTAL #1	3/6/17

16-066 job no.
DSE drawn
CNH checked
01-23-17 date

REGISTERED PROFESSIONAL ENGINEER 59412PE OREGON JULY 9, 2004 CRAIG N. HARRIS
RENEWAL 6/30/17

AAI aai associates, inc. ENGINEERING
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503.620.3030 tel 503.620.3031 fax www.aai-1.com
Project No. 16-0411

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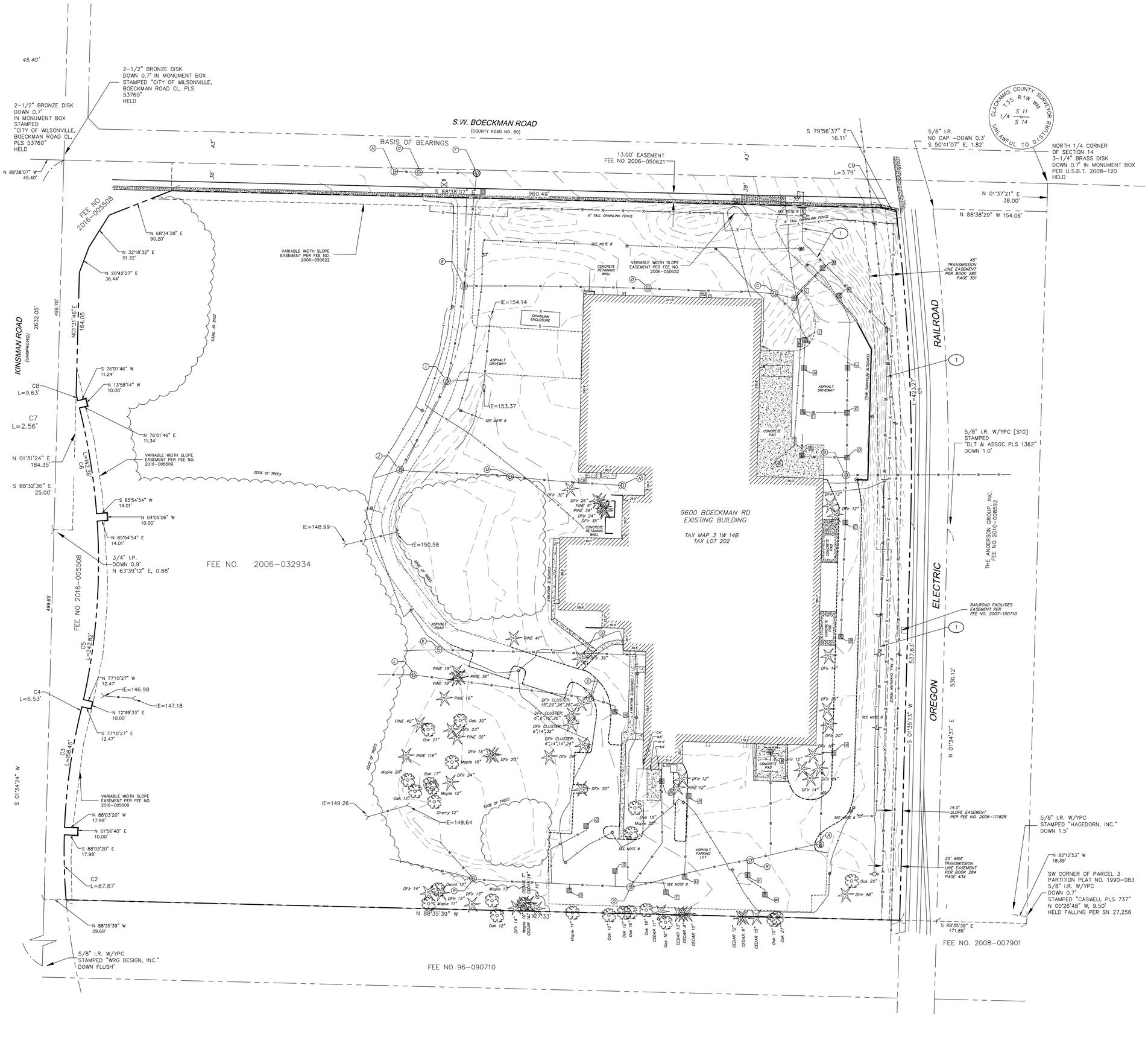
GENERAL NOTES

sheet 1
C0.1



SURVEY NOTES

1. VERTICAL DATUM IS NAVD88 BASED ON OPUS SOLUTION OF STATIC GPS OBSERVATION.
2. THE BOUNDARIES AS SHOWN ON THIS MAP ARE BASED ON RECORD DATA AND FOUND MONUMENTS. THIS MAP DOES NOT REPRESENT A SURVEY TO BE RECORDED, BUT WAS DONE FOR SITE/TOPO INFORMATION ONLY.
3. THE LOCATION AND OR EXISTENCE OF UTILITY SERVICE LINES AS SHOWN ON THIS MAP ARE BASED ON FIELD OBSERVATION ONLY. THERE MAY EXIST ADDITIONAL SERVICE LINES NOT SHOWN ON THIS SURVEY.
4. SUBSURFACE AND ENVIRONMENTAL CONDITIONS WERE NOT EXAMINED OR CONSIDERED AS A PART OF THIS SURVEY. NO STATEMENT IS MADE CONCERNING THE EXISTENCE OF UNDERGROUND OR OVERHEAD CONTAINERS OR FACILITIES THAT MAY AFFECT THE USE OR DEVELOPMENT OF THIS TRACT.
5. PRIVATE UTILITY LOCATOR UNABLE TO DETERMINE LOCATION OF PRIVATE WATER LINE, SUSPECTED PLASTIC PIPE BURIED WITHOUT MAGNETIC LOCATING STRIPS. WATER SYSTEM IS ASSUMED TO BE A LOOPED SYSTEM THAT CIRCLES THE EXISTING BUILDING.

(X) UTILITIY NOTES

1 APPROXIMATE LOCATION OF EXISTING 10" CI WATER MAIN SHOWN. CONTRACTOR TO POTHOLE AND VERIFY LOCATION PRIOR TO CONSTRUCTION

SURVEY LEGEND

- FOUND MONUMENT AS NOTED
- (S) SANITARY SEWER MANHOLE
- (D) STORM DRAIN MANHOLE
- CATCH BASIN
- GM GAS METER
- UTILITY POLE
- METAL LIGHT POLE
- METAL BOLLARD
- WV WATER VALVE
- FIRE HYDRANT
- FDC
- VE ELECTRIC VAULT
- VW WATER VAULT
- TRANSFORMER
- ICB IRRIGATION CONTROL BOX
- — SS — SANITARY SEWER LINE
- — SD — STORM DRAIN LINE
- — W — WATER LINE
- — TV — UNDERGROUND TELEVISION CABLE LINE
- — T — UNDERGROUND COMMUNICATIONS LINE
- — E — UNDERGROUND ELECTRICAL LINE
- — OH — OVERHEAD UTILITY LINE
- — X — FENCE LINE

NORTH

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

SINCE 1952
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LAKE OSWEGO, OREGON 97035
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no.	revision	date
1.	SITE DESIGN REVIEW RESUBMITTAL #2	8/4/17
2.	SITE DESIGN REVIEW RESUBMITTAL #1	5/9/17

job no.	16-066
drawn	DSE
checked	CNH
date	01-23-17

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 15, 1983
CRAIG N. HARRIS
RENEWAL 6/30/17

AAI aba associates, inc.
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EXISTING CONDITIONS

sheet 1

C0.2

SW BOECKMAN RD

EXISTING BUILDING
FF=157.40

SHEET NOTES

1. CONTRACTOR MAY STAGE WITHIN LIMITS OF DEMOLITION.
2. REMOVE ALL SITE COMPONENTS AND RECYCLE COMPONENTS AS REQUIRED IN THE SPECIFICATIONS.
3. ALL TRADE LICENSES AND PERMITS NECESSARY FOR THE PROCUREMENT AND COMPLETION OF THE WORK SHALL BE SECURED BY THE CONTRACTOR PRIOR TO COMMENCING DEMOLITION.
4. THE CONTRACTOR SHALL PRESERVE AND PROTECT FROM DAMAGE ALL EXISTING RIGHT-OF-WAY SURVEY MONUMENTATION DURING DEMOLITION. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING AND PAYING FOR THE REPLACEMENT BY A LICENSED SURVEYOR OF ANY DAMAGED OR REMOVED MONUMENTS.
5. PROTECT ALL ITEMS ON ADJACENT PROPERTIES AND IN THE RIGHT OF WAY INCLUDING BUT NOT LIMITED TO SIGNAL EQUIPMENT, PARKING METERS, SIDEWALKS, STREET TREES, STREET LIGHTS, CURBS, PAVEMENT AND SIGNS. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING ANY DAMAGED ITEMS TO ORIGINAL CONDITION.
6. PROTECT STRUCTURES, UTILITIES, SIDEWALKS, AND OTHER FACILITIES IMMEDIATELY ADJACENT TO EXCAVATIONS FROM DAMAGES CAUSED BY SETTLEMENT, LATERAL MOVEMENT, UNDERMINING, WASHOUT AND OTHER HAZARDS.
7. SAWCUT STRAIGHT LINES IN SIDEWALK, AS NECESSARY.
8. CONTRACTOR IS RESPONSIBLE TO CONTROL DUST AND MUD DURING THE DEMOLITION PERIOD, AND DURING TRANSPORTATION OF DEMOLITION DEBRIS. ALL STREET SURFACES OUTSIDE THE CONSTRUCTION ZONE MUST BE KEPT CLEAN.
9. PROTECT ALL EXISTING UTILITY STRUCTURES AND UNDERGROUND MAINS TO REMAIN.
10. PROTECT ALL EXISTING VEGETATION TO REMAIN.

(X) KEY NOTES

1	PROTECT CURB AND SIDEWALK
2	PROTECT LIGHT POLE
3	PROTECT EXISTING WALL
10	SAWCUT LINE AND REMOVE ASPHALT PAVEMENT OR CONCRETE SURFACING AND CRUSHED ROCK
11	REMOVE CONCRETE CURB
12	REMOVE TREE
13	REMOVE FENCE
14	REMOVE OR RELOCATE EXISTING LIGHT POLE
15	REMOVE CONCRETE SURFACE
16	REMOVE AND RELOCATED EXISTING FIRE HYDRANT
17	ABANDON STORM DITCH AND STORM LINE
18	ABANDON UNDERGROUND COMMUNICATION LINE

SHEET LEGEND

- PROPERTY LINE
- SAWCUT LINE
- DEMOLITION LIMITS

NORTH

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

no.	revision	date
1	SITE DESIGN REVIEW RESUBMITTAL #2	6/1/17
2	SITE DESIGN REVIEW RESUBMITTAL #1	5/9/17

16-066 job no.
DSE drawn
CNH checked
01-23-17 date

REGISTERED PROFESSIONAL ENGINEER 59412PE OREGON JULY 9, 1982 CRAIG N. HARRIS
RENEWAL 6/30/17

AAI aqua associates, Inc. ENGINEERING
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Project No. 16-066

DWFRITZ Renovation
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Wilsonville, OR 97070

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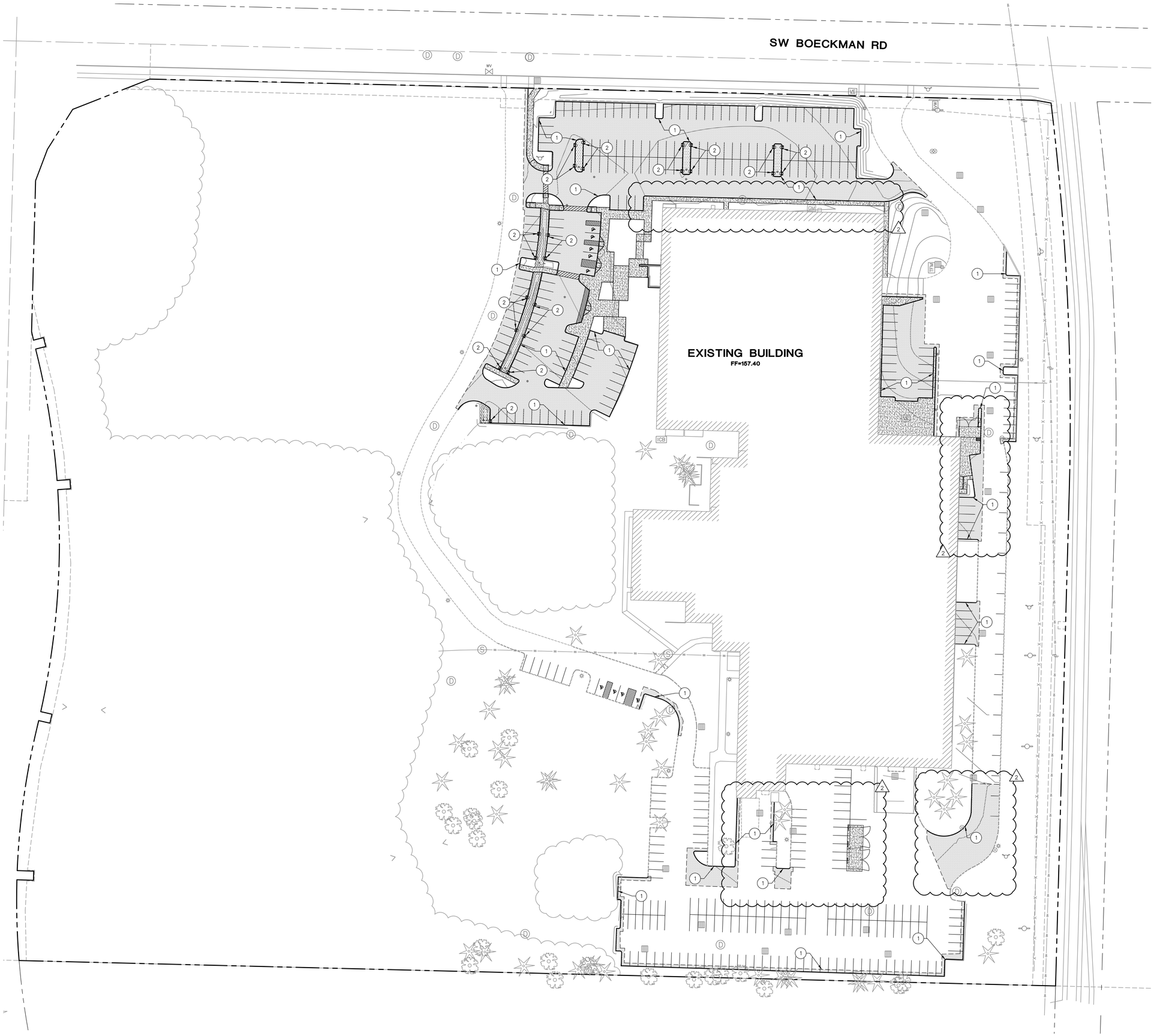
DEMOLITION PLAN

sheet 1
C0.3



SHEET NOTES

1. SEE SHEET C0.1 FOR ADDITIONAL SHEET NOTES.
2. SEE ARCHITECTURAL PLANS FOR ADDITIONAL SITE INFORMATION.
3. THE CONTRACTOR SHALL HAVE A FULL SET OF THE CURRENT APPROVED CONSTRUCTION DOCUMENTS INCLUDING ADDENDA ON THE PROJECT SITE AT ALL TIMES.
4. THE CONTRACTOR SHALL KEEP THE ENGINEER AND JURISDICTION INFORMED OF CONSTRUCTION PROGRESS TO FACILITATE SITE OBSERVATIONS AT REQUIRED INTERVALS. 24-HOUR NOTICE IS REQUIRED.

(X) SITE NOTES

1 CONSTRUCT TYPICAL CURB PER DETAIL 1/C4.0

2 CONSTRUCT CONCRETE CURB INLET PER DETAIL 2/C4.0

LEGENDS

PROPERTY LINE

PROPOSED CURB

SIDEWALK PER DETAIL 3/C4.0

ASPHALT SURFACING PER DETAIL 4/C4.0

VEGETATED FLOW-THROUGH BASINS (VFB)

NORTH

GRAPHIC SCALE

5 0 2.5 5 10 20

(IN FEET)
1 inch = 5 ft.

no.	revision	date
2	SITE DESIGN REVIEW RESUBMITTAL #2	6/14/17
1	SITE DESIGN REVIEW RESUBMITTAL #1	5/9/17

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01-23-17 date

REGISTERED PROFESSIONAL ENGINEER 59412PE OREGON JULY 15, 2003 CRAIG N. HARRIS
RENEWAL 6/30/17

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SITE PLAN

sheet 1 of 1
C1.0

SHEET C2.1

SW BOECKMAN RD

EXISTING BUILDING
FF=157.40

SHEET C2.2

SHEET NOTES

1. SEE SHEET C0.1 FOR ADDITIONAL SHEET NOTES.
2. CURB HEIGHTS ARE 6" UNLESS NOTED OTHERWISE.
3. LANDINGS ON ACCESSIBLE ROUTES SHALL NOT EXCEED 2% IN ANY DIRECTION.
4. ALL ACCESSIBLE ROUTES SHALL COMPLY WITH CURRENT ADA ACCESSIBILITY GUIDELINES FOR BUILDING AND FACILITIES (ADAAG).
5. ALL WALKWAYS FROM ACCESSIBLE UNITS ARE DESIGNED TO NOT REQUIRE HANDRAILS. THEREFORE, RAMPS WITH SLOPES STEEPER THAN 5.0% AND LESS THAN 8.33% SHALL NOT EXCEED 0.5' RISE OR 6.0' LENGTH.
6. FINISH GRADES ARE TO BE BROUGHT TO WITHIN 0.08 FT IN 10 FT OF THE GRADES SHOWN AT SUBGRADE AND TO WITHIN 0.03 FT IN 10 FT AT FINISH GRADE. CONTRACTOR TO ALLOW FOR PLACEMENT OF REQUIRED TOPSOIL IN ROUGH GRADING.
7. GRADING ELEVATIONS AS SHOWN ON SITE AND LANDSCAPE PLANS ARE FINISHED GRADE WHICH INCLUDES SUBGRADE SOIL, TOPSOIL, SOIL AMENDMENTS, ROCKERY AND RUNOFF PROTECTION CONTRACTOR IS RESPONSIBLE TO COORDINATE GRADING WITH BOTH EXCAVATOR AND LANDSCAPE CONTRACTOR.

LEGEND

EXISTING CONTOUR MINOR — 102

EXISTING CONTOUR MAJOR — 100

PROPOSED CONTOUR MINOR — 102

PROPOSED CONTOUR MAJOR — 100

NORTH

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

no.	revision	date
2.	SITE DESIGN REVIEW RESUBMITTAL #2	6/1/17
1.	SITE DESIGN REVIEW RESUBMITTAL #1	5/9/17

16-066 job no.
DSE drawn
CNH checked
01-23-17 date

REGISTERED PROFESSIONAL ENGINEER 59412PE OREGON CRAIG N. HARRIS 12/31/17
RENEWAL 6/30/17

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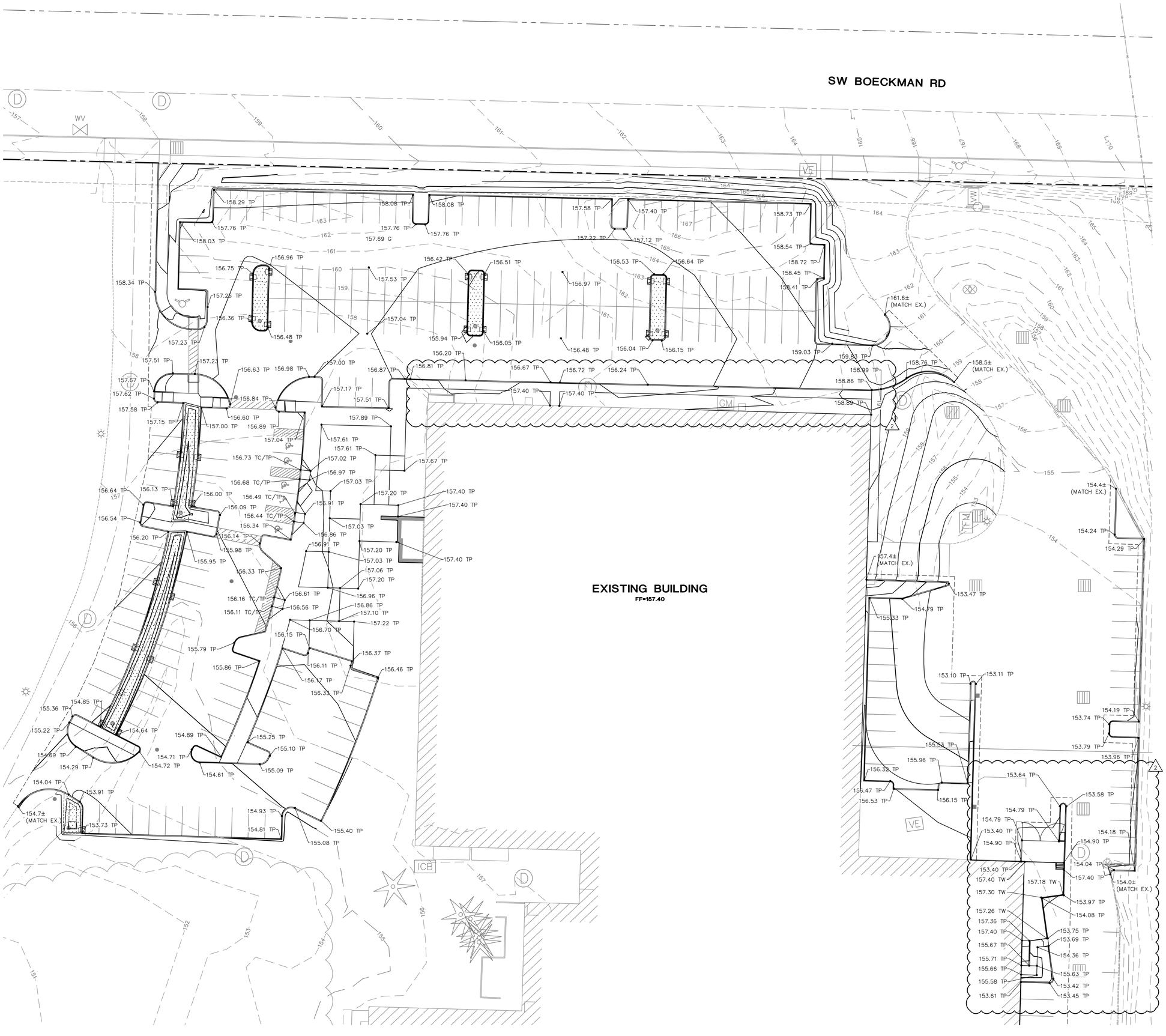
GRADING PLAN

sheet 1
C2.0



SHEET NOTES

1. SEE SHEETS C0.1 AND C2.0 FOR SHEET NOTES AND LEGEND

GRADING LABEL LEGEND

CALLOUT — DESCRIPTION

- SPOT ELEVATION
- DESCRIPTION LISTED BELOW. NO DESCRIPTION MEANS TP OR TG

XX.XX XX

BS	BOTTOM OF STAIRS
EX	EXISTING GRADE
FF	FINISHED FLOOR ELEVATION
FG	FINISH GRADE
TC	TOP OF CURB
TP	TOP OF PAVEMENT
TS	TOP OF STAIRS

no.	revision	date
2.	SITE DESIGN REVIEW RESUBMITTAL #2	6/14/17
1.	SITE DESIGN REVIEW RESUBMITTAL #1	5/8/17

16-066 job no.
DSE drawn
CNH checked
01-23-17 date

REGISTERED PROFESSIONAL ENGINEER 59412PE OREGON JULY 9, 1993 CRAIG N. HARRIS
RENEWAL 6/30/17

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GRADING ENLARGEMENT

sheet 1/1
C2.1

SHEET NOTES

1. SEE SHEETS C0.1 AND C2.0 FOR SHEET NOTES AND LEGEND

GRADING LABEL LEGEND

CALLOUT — DESCRIPTION

XX.XX — SPOT ELEVATION

XX — DESCRIPTION LISTED BELOW. NO DESCRIPTION MEANS TP OR TG

BS	BOTTOM OF STAIRS
EX	EXISTING GRADE
FF	FINISHED FLOOR ELEVATION
FG	FINISH GRADE
TC	TOP OF CURB
TP	TOP OF PAVEMENT
TS	TOP OF STAIRS

EXISTING BUILDING
FF=157.40

154.28 TP
153.8± (MATCH EX.)
154.79 TP
154.3± (MATCH EX.)
155.61 TP
155.1± (MATCH EX.)
155.24 TP
155.13 TP
154.9± (MATCH EX.)
154.98 TP
154.85 TP
154.8± (MATCH EX.)
157.00 TP
157.65 TP
156.82 TP
157.24 TP
157.1± (MATCH EX.)
155.0± (MATCH EX.)
154.67 TP
154.58 TP
154.79 TP
154.89 TP
155.72 TP
155.57 TP
156.3± (MATCH EX.)
156.28 TP
156.1± (MATCH EX.)
156.06 TP
155.7± (MATCH EX.)
155.8± (MATCH EX.)
156.1± (MATCH EX.)
156.1± (MATCH EX.)
157.0± (MATCH EX.)
156.3± (MATCH EX.)
156.4± (MATCH EX.)
156.90 TP
157.5± (MATCH EX.)
157.1± (MATCH EX.)
157.1± (MATCH EX.)
154.4± (MATCH EX.)
154.28 TP
154.43 TP
153.65 TP
153.60 TP
154.16 TP
154.21 TP
154.45 TP
154.38 TP
154.52 TP
156.75 TP
156.57 TP
156.54 TP
156.62 TP

NORTH

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

no.	revision	date
1	SITE DESIGN REVIEW RESUBMITTAL #2	8/4/17
2	SITE DESIGN REVIEW RESUBMITTAL #2	9/6/17

16-066 job no.
DSE drawn
CNH checked
01-23-17 date

REGISTERED PROFESSIONAL ENGINEER 59412PE OREGON JULY 13, 2007 CRAIG N. HARRIS
RENEWAL 6/30/17

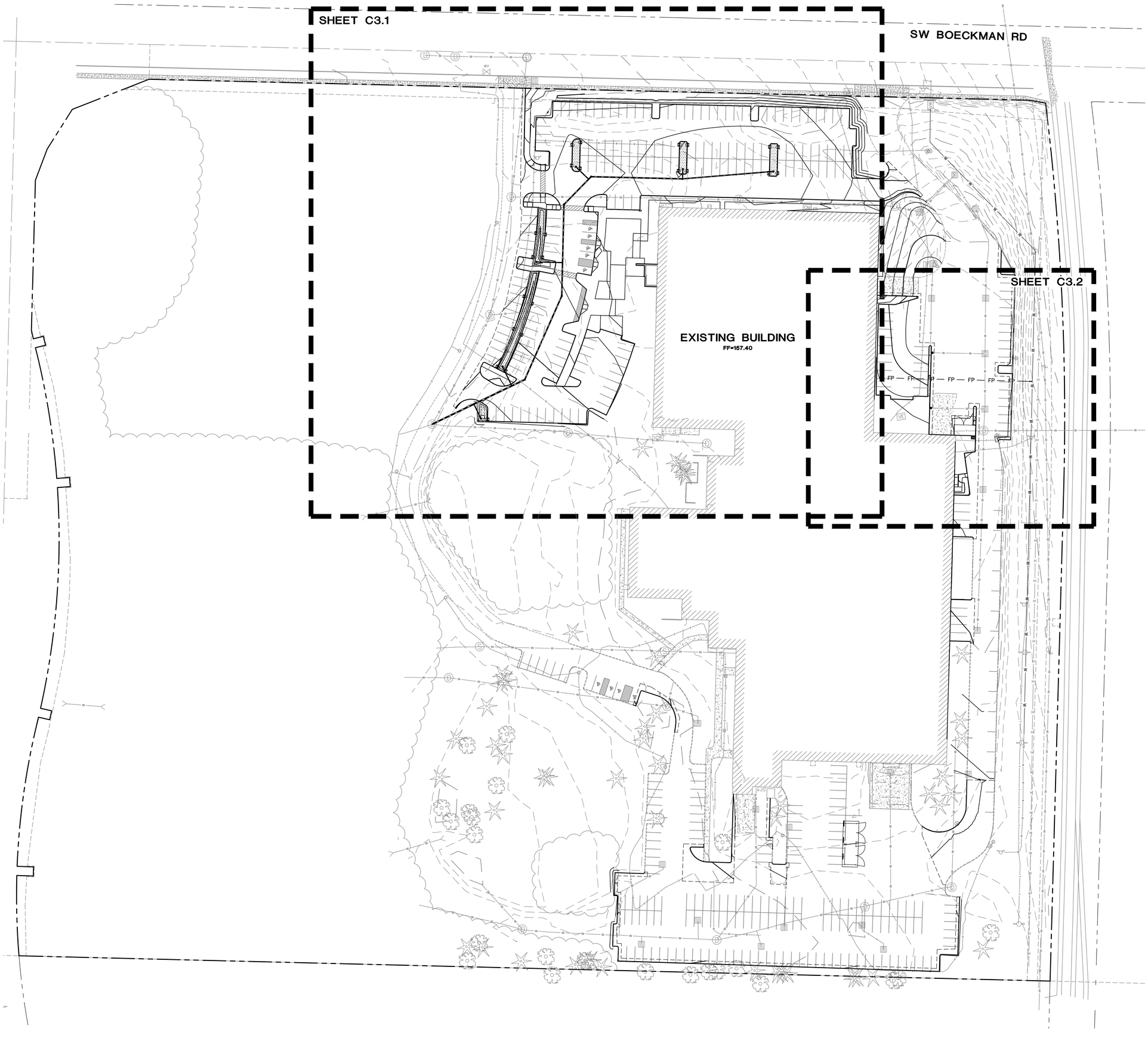
AAI aba associates, inc. ENGINEERING
4475 Commercial St SE, Salem, OR 97302
503.620.3058 fax 503.620.3059 fax Vancouver, WA 98665
Project No. 160211

DWFRITZ Renovation
9900 SW Boeckman Rd.
Wilsonville, OR 97070

LANCE MUELLER & ASSOCIATES
ARCHITECTS · AIA
130 LAKESIDE · SEATTLE, WA 98122 · 206 325 2553

GRADING ENLARGEMENT

sheet 1
C2.2



SHEET NOTES

1. SEE SHEET C0.1 FOR ADDITIONAL SHEET NOTES.
2. PIPE BEDDING AND BACKFILL UTILITIES SHALL BE DONE PER DETAIL 5/C4.0.
3. INSTALL THRUST BLOCKS ON FIRE AND WATER LINES PER DETAIL 6/C4.0.
4. THIS PLAN IS GENERALLY DIAGRAMMATIC. IT DOES NOT SHOW EVERY JOINT, BEND, FITTING, OR ACCESSORY REQUIRED FOR CONSTRUCTION.
5. CLEAN OUTS SHALL BE INSTALLED IN CONFORMANCE WITH UPC CHAPTER SEVEN, SECTION 707 AND SECTION 719. NOT ALL REQUIRED CLEAN OUTS ARE SHOWN.
6. DOMESTIC WATER AND FIRE LINES AND ACCESSORIES BETWEEN THE WATER METER AND THE BUILDING SHALL BE INSTALLED BY A LICENSED PLUMBER EMPLOYED BY A LICENSED PLUMBING CONTRACTOR.
7. UTILITIES WITHIN FIVE FEET OF A BUILDING SHALL BE CONSTRUCTED OF MATERIALS APPROVED FOR INTERIOR USE AS DESCRIBED IN THE CURRENT EDITION OF THE UPC.
8. INLETS AND OUTLETS TO ON-SITE MANHOLES SHALL HAVE FLEXIBLE CONNECTION NO CLOSER THAN 12" AND NO FARTHER THAN 36" FROM THE MANHOLE.

LEGEND

STORM LINE

FIRE LINE — FP — FP — FP — FP —

no.	revision	date
2.	SITE DESIGN REVIEW RESUBMITTAL #2	6/1/17
1.	SITE DESIGN REVIEW RESUBMITTAL #1	5/9/17

16-066 job no.
DSE drawn
CNH checked
01-23-17 date

REGISTERED PROFESSIONAL ENGINEER 59412PE OREGON CRAIG N. HARRIS 12/31/17
RENEWAL 6/30/17

AAI aba associates, inc. ENGINEERING
6970 SW Hampton Street | Tigard, OR 97223
503.620.3059 tel | 503.639.3099 fax | www.aai-or.com
Project No. 1614111

DWFRITZ Renovation
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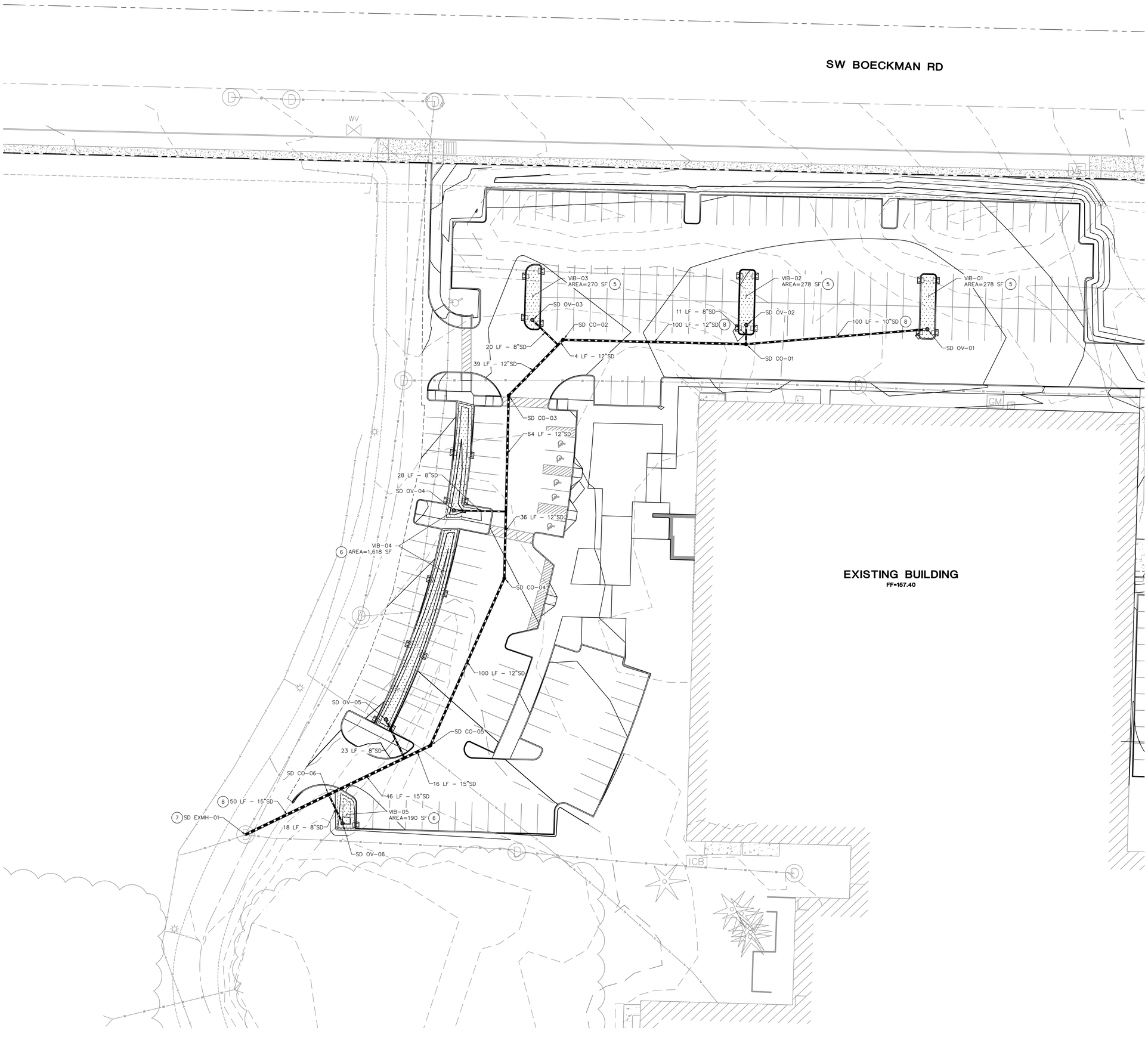
Wilsonville, OR 97070

LANCE MUELLER & ASSOCIATES
ARCHITECTS · AIA
130 LAKESIDE · SEATTLE, WA 98122 · 206 325 2553

UTILITY PLAN

sheet C3.0



SHEET NOTES

1. SEE SHEETS C0.1 AND C3.0 FOR SHEET NOTES AND LEGEND.
2. ALL HORIZONTAL AND PIPE INVERT ELEVATIONS ARE BASED ON THE CENTER OF THE STRUCTURE,

(X) UTILITIY NOTES

1 APPROXIMATE LOCATION OF EXISTING 10" CI WATER MAIN. CONTRACTOR TO POTHOLE AND VERIFY LOCATION PRIOR TO ORDERING MATERIALS.

2 CONNECT TO EXISTING WATER MAIN WITH 10"x8" TAPPING SLEEVE.

3 CONNECT TO EXISTING BUILDING SERVICE. SEE PLUMBING PLANS FOR CONTINUATION.

4 INSTALL MJxMJ 8" 45° BEND.

5 CONSTRUCT STORMWATER PLANTER, PER DETAIL 7/C4.0.

6 CONSTRUCT STORMWATER SWALE, PER DETAIL 8/C4.0.

7 CONNECT TO EXISTING STORMWATER STRUCTURE. CONTRACTOR TO VERIFY PIPE INVERTS PRIOR TO CONSTRUCTION.

8 INSTALL DIP PIPING

LABEL LEGEND

PIPE LABELS

UTILITY LENGTH
UTILITY SIZE
UTILITY TYPE
XXLF - XX" XX
S=X.XX%
SLOPE (WHERE APPLICABLE)

STRUCTURE LABELS

UTILITY TYPE (SD=STORM DRAINAGE, FP=FIRE PROTECTION)
STRUCTURE TYPE CALLOUT (SEE BELOW)
ID NUMBER (WHERE APPLICABLE)
XX XX-XX
RIM=XX.XX
IE IN=XX.X
IE OUT=XX.X
STRUCTURE INFO (WHERE APPLICABLE)

STRUCTURE TYPES

CALLOUT	DESCRIPTION
CB	CATCH BASIN, PER DETAIL 9/C4.0
CO	CLEAN OUT, PER DETAIL 10/C4.0
GV	GATE VALVE, PER DETAIL 11/C4.0
MH	48" MANHOLE, PER DETAIL 12/C4.0
PIV	POST INDICATOR VALVE, PER DETAIL 13/C4.0
OV	OVERFLOW INLET, PER DETAIL 14/C4.0

NORTH

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

no.	revision	date
2	SITE DESIGN REVIEW RESUBMITTAL #2	6/1/17
1	SITE DESIGN REVIEW RESUBMITTAL #1	5/5/17

16-066 job no.
DSE drawn
CNH checked
01-23-17 date

REGISTERED PROFESSIONAL ENGINEER 59412PE OREGON JULY 9, 1993 CRAIG N. HARRIS
RENEWAL 6/30/17

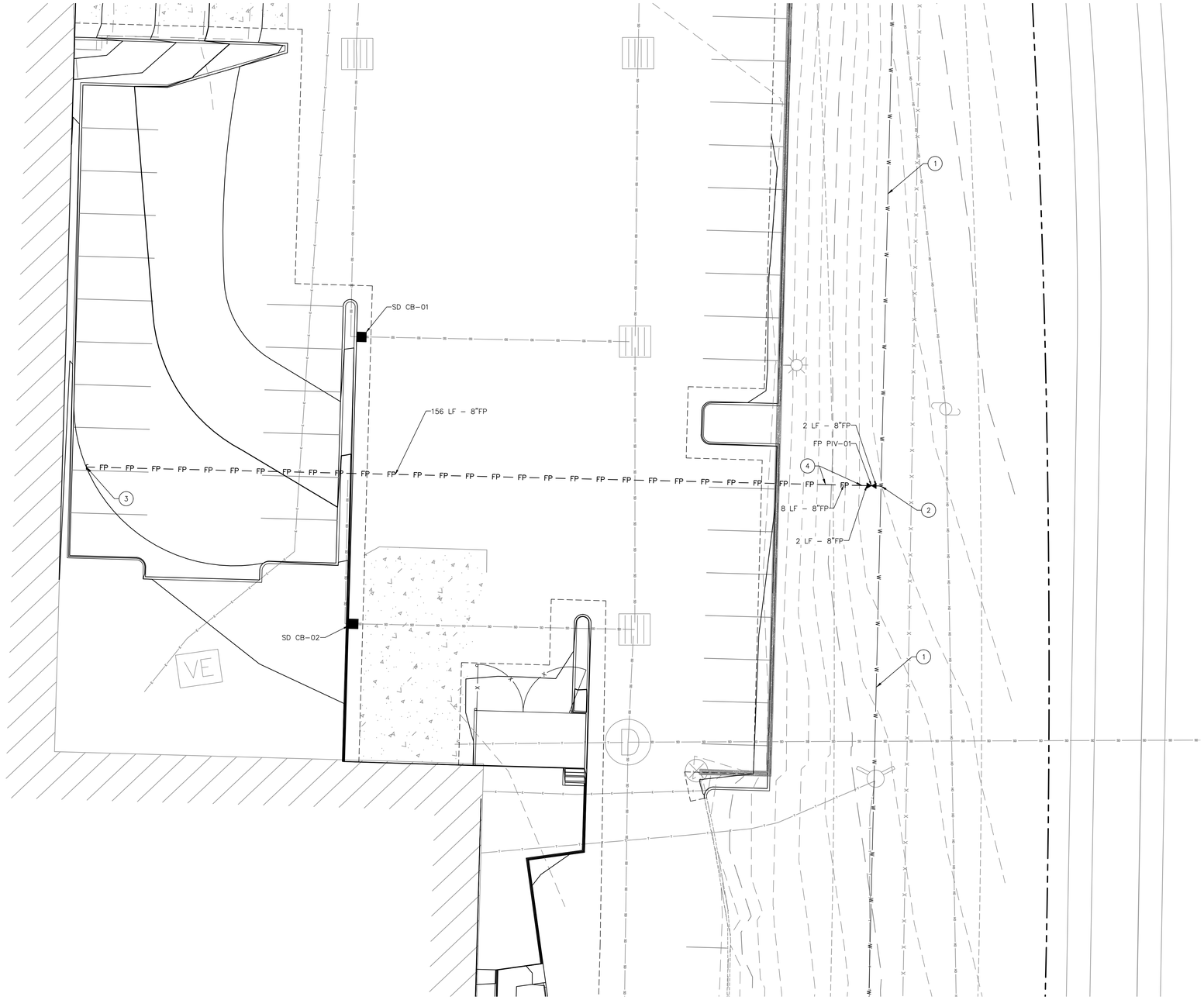
AAI aqua associates, inc. ENGINEERING
4075 SW Cedar Hills Blvd. Suite 290 Beaverton, OR 97005
503.620.3656 tel 1.800.628.3656 fax www.aqua-inc.com
Project No. 16-0411

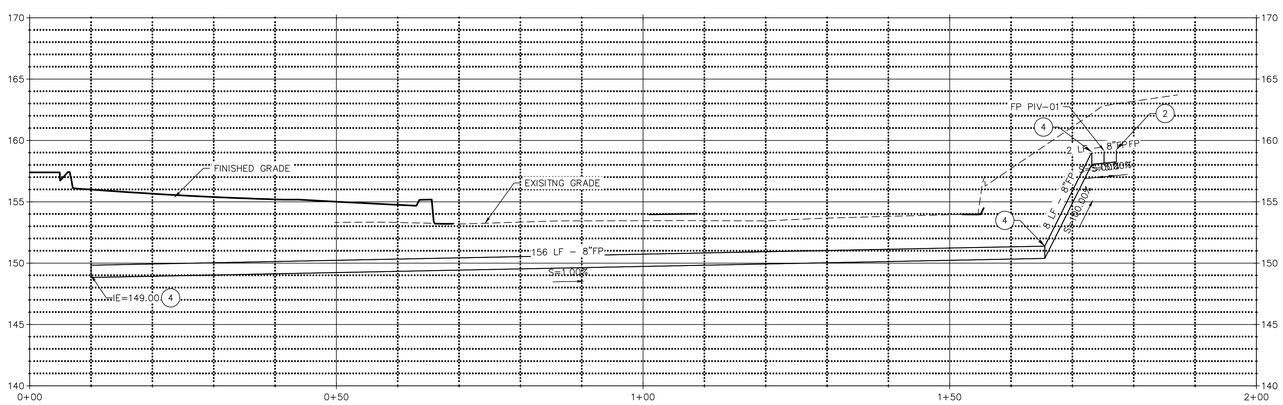
DWFRITZ Renovation
9900 SW Boeckman Rd.
Wilsonville, OR 97070

LANCE MUELLER & ASSOCIATES
ARCHITECTS · AIA
130 LAKESIDE · SEATTLE, WA 98122 · 206 325 2553

UTILITY ENLARGEMENT

sheet C3.1





SHEET NOTES

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2. ALL HORIZONTAL AND PIPE INVERT ELEVATIONS ARE BASED ON THE CENTER OF THE STRUCTURE,

(X) UTILITIY NOTES

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2 CONNECT TO EXISTING WATER MAIN WITH 10"x8" TAPPING SLEEVE.

3 CONNECT TO EXISTING BUILDING SERVICE. SEE PLUMBING PLANS FOR CONTINUATION.

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6 CONSTRUCT STORMWATER SWALE, PER DETAIL 8/C4.0.

7 CONNECT TO EXISTING STORMWATER STRUCTURE. CONTRACTOR TO VERIFY PIPE INVERTS PRIOR TO CONSTRUCTION.

8 INSTALL DIP PIPING

LABEL LEGEND

PIPE LABELS

UTILITY LENGTH
UTILITY SIZE
UTILITY TYPE
XXLF – XX" XX

S=X.XX%
SLOPE (WHERE APPLICABLE)

STRUCTURE LABELS

UTILITY TYPE (SD=STORM DRAINAGE, FP=FIRE PROTECTION)
STRUCTURE TYPE CALLOUT (SEE BELOW)
ID NUMBER (WHERE APPLICABLE)

XX XX-XX
RIM=XX.XX
IE IN=XX.X
IE OUT=XX.X
← STRUCTURE INFO (WHERE APPLICABLE)

STRUCTURE TYPES

CALLOUT	DESCRIPTION
CB	CATCH BASIN, PER DETAIL 9/C4.0
CO	CLEAN OUT, PER DETAIL 10/C4.0
GV	GATE VALVE, PER DETAIL 11/C4.0
MH	48" MANHOLE, PER DETAIL 12/C4.0
PIV	POST INDICATOR VALVE, PER DETAIL 13/C4.0
OV	OVERFLOW INLET, PER DETAIL 14/C4.0

NORTH

GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)
1 inch = 10 ft.

no.	revision	date
2	SITE DESIGN REVIEW RESUBMITTAL #2	6/14/17
1	SITE DESIGN REVIEW RESUBMITTAL #1	5/9/17

16-066 job no.
DSE drawn
CNH checked
01-23-17 date

REGISTERED PROFESSIONAL ENGINEER 59412PE OREGON JULY 15, 1983 CRAIG N. HARRIS
RENEWAL 6/30/17

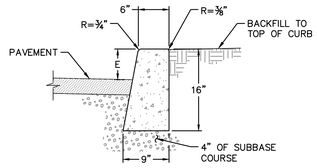
AAI aqua associates, inc. ENGINEERING
4874 Dorsett Drive, Suite 100 Portland, OR 97035
503.620.3088 tel 1.503.620.3089 fax www.aqua-inc.com
Project No. 16-0411

DWFRITZ Renovation
9900 SW Boeckman Rd.
Wilsonville, OR 97070

LANCE MUELLER & ASSOCIATES
ARCHITECTS · AIA
130 LAKESIDE · SEATTLE, WA 98122 · 206 325 2553

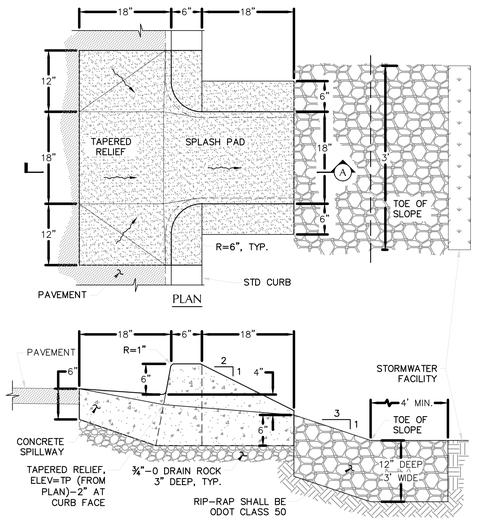
UTILITY ENLARGEMENT

sheet 1
C3.2

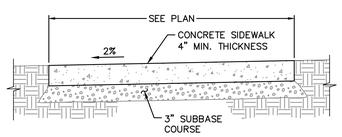


NOTES:
1. CURB EXPOSURE 'E' = 6", TYP. VARY AS SHOWN ON PLANS OR AS DIRECTED.
2. CONSTRUCT CONTRACTION JOINTS AT 15' MAX. SPACING AND AT RAMPS. CONSTRUCT EXPANSION JOINTS AT 200' MAX SPACING AT POINTS OF TANGENCY AND AT ENDS OF EACH DRIVEWAY.
3. TOPS OF ALL CURBS SHALL SLOPE TOWARD THE ROADWAY AT 2% UNLESS OTHERWISE SHOWN OR AS DIRECTED.
4. DIMENSIONS ARE NOMINAL AND MAY VARY TO CONFORM WITH CURB MACHINE AS APPROVED BY THE ENGINEER.

1 CONCRETE CURB - STANDARD
SCALE: NTS

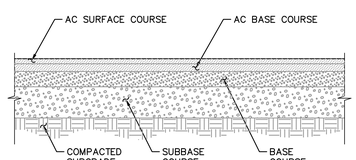


2 CONCRETE CURB INLET
SCALE: NTS



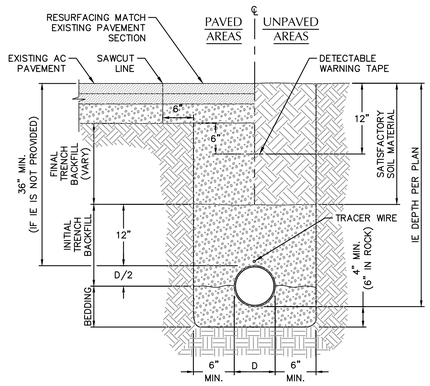
NOTES:
1. CONSTRUCT CONTRACTION JOINTS AT 15' MAX. SPACING AND AT RAMPS. CONSTRUCT EXPANSION JOINTS AT 200' MAX SPACING, AT POINTS OF TANGENCY AND AT ENDS OF EACH DRIVEWAY, UNLESS NOTED OTHERWISE.

3 CONCRETE SIDEWALK
SCALE: NTS

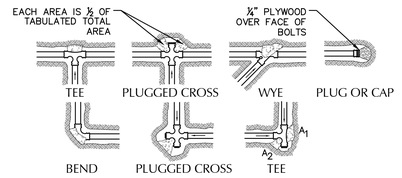


NOTES:
1. MATCH EXISTING ASPHALT PAVEMENT, WHICHEVER IS GREATER.

4 ASPHALT PAVEMENT SECTION
SCALE: NTS



5 TYPICAL PIPE BEDDING AND BACKFILL
SCALE: NTS



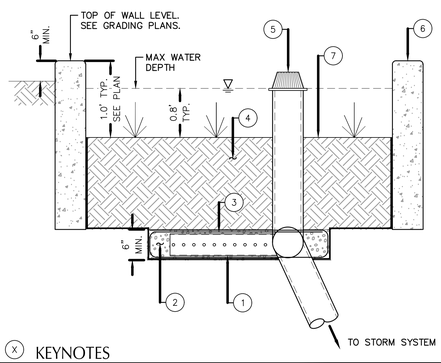
1. CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
2. KEEP CONCRETE CLEAR OF JOINT AND ACCESSORIES.
3. THE REQUIRED THRUST BEARING AREAS FOR SPECIAL CONNECTIONS ARE SHOWN ENCIRCLED ON THE PLAN; e.g. (15) INDICATES 15 SQUARE FEET BEARING AREA REQUIRED.
4. IF NOT SHOWN ON PLANS REQUIRED BEARING AREAS AT FITTING SHALL BE AS INDICATED BELOW, ADJUST IF NECESSARY, TO CONFORM TO THE TEST PRESSURE(S) AND ALLOWABLE SOIL BEARING STRESS (ES) STATED IN THE SPECIAL SPECIFICATIONS.
5. BEARING AREAS AND SPECIAL BLOCKING DETAILS SHOWN ON PLANS TAKE PRECEDENCE OVER BEARING AREAS AND BLOCKING DETAILS SHOWN ON THIS STANDARD DETAIL.

BEARING AREA OF THRUST BLOCK IN SQUARE FOOT

FITTING SIZE	TEE, WYE, PLUG, OR CAP	90° BEND PLUGGED CROSS	TEE PLUGGED ON RUN A1	TEE PLUGGED ON RUN A2	45° BEND	22½° BEND	11¼° BEND
4	1.0	1.4	1.9	1.4	1.0		
6	2.1	3.0	4.3	3.0	1.6	1.0	
8	3.8	5.3	7.6	5.4	2.9	1.5	1.0
10	5.9	8.4	11.8	8.4	4.6	2.4	1.2

NOTE:
ABOVE BEARING AREAS BASED ON TEST PRESSURE OF 150 p.s.i. AND AN ALLOWABLE SOIL BEARING STRESS OF 2000 p.s.i.. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURE AND SOIL BEARING STRESSES, USE THE FOLLOWING EQUATION: BEARING AREA = (TEST PRESSURE/150)X(2000/ SOIL BEARING STRESS)X(TABLE VALUE).

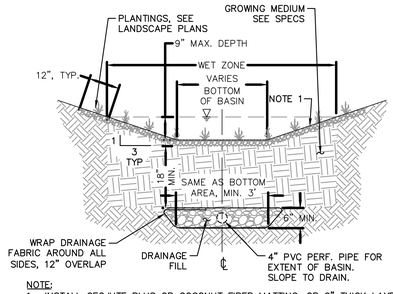
6 THRUST BLOCK
SCALE: NTS



(X) KEYNOTES

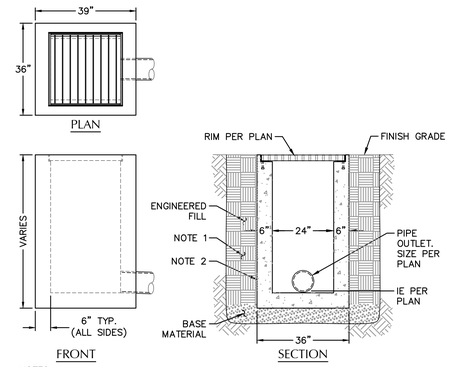
1 4" PVC PERF. PIPE FOR EXTENT OF FACILITY. SLOPE TO DRAIN.
2 DRAINAGE FILL, MIN. THICKNESS AS SHOWN.
3 WRAP DRAINAGE FABRIC AROUND ALL SIDES OF DRAINAGE FILL ZONE, 12" OVERLAP.
4 GROWING MEDIUM PER SOIL PREPARATION SPECIFICATIONS. THICKNESS AS SHOWN.
5 OVERFLOW INLET, SEE PLAN FOR TYPE.
6 CONCRETE CURB WALL.
7 PLANTINGS. SEE LANDSCAPE PLANS.

7 TYPICAL FLOW-THROUGH PLANTER
SCALE: NTS



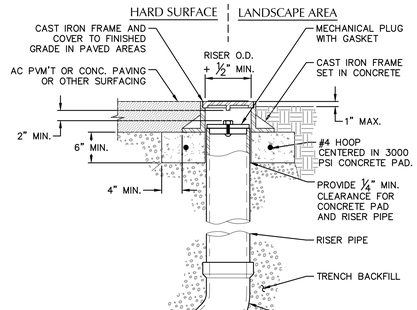
NOTE:
1. INSTALL GEOJUTE PLUS OR COCONUT FIBER MATTING, OR 2" THICK LAYER OF PEA GRAVEL OR OTHER NON–FLOATING MULCH AS APPROVED BY LANDSCAPE ARCHITECT.

8 TYPICAL FLOW-THROUGH BASIN
SCALE: NTS



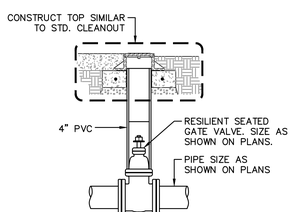
NOTES:
1. CONTRACTOR TO WIDEN EXCAVATION AS REQUIRED TO OBTAIN COMPACTION WITH CONTRACTORS COMPACTION EQUIPMENT.
2. CONCRETE BASIN TO BE 3000 PSI.

9 CONCRETE CATCH BASIN
SCALE: NTS

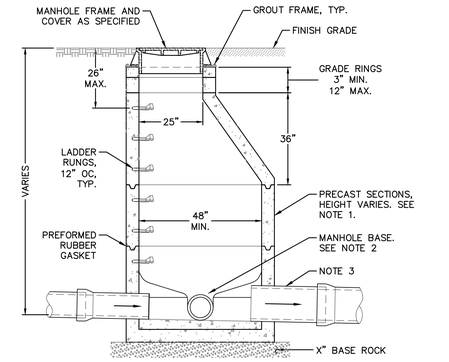


NOTES:
1. CAST IRON FRAME AND COVER SHALL MEET H–20 LOAD REQUIREMENT.
2. FOR CARRIER PIPE SIZE 6"Ø AND LESS, PROVIDE RISER PIPE SIZE TO MATCH CARRIER PIPE.
3. FOR CARRIER PIPE SIZE 8"Ø AND LARGER, RISER PIPE SHALL BE 6"Ø.
4. RISER PIPE MATERIAL TO MATCH CARRIER PIPE MATERIAL.

10 STANDARD CLEANOUT (COTG)
SCALE: NTS

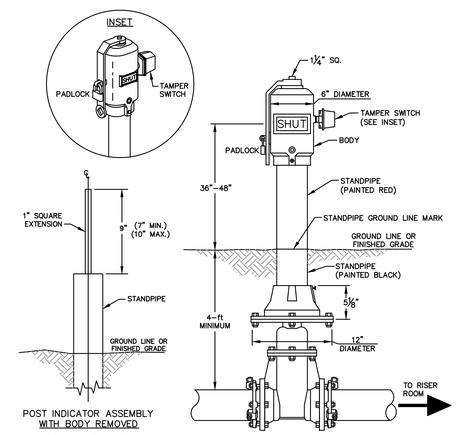


11 GATE VALVE
SCALE: NTS



NOTES:
1. ALL PRECAST SECTIONS SHALL CONFORM TO REQUIREMENTS OF ASTM C–478.
2. MANHOLE BASE MAY BE PRECAST OR CAST IN PLACE. SEE STANDARD MANHOLE BASE DETAILS.
3. ALL CONNECTING PIPES SHALL HAVE FLEXIBLE, GASKETED AND UNRESTRAINED JOINT WITHIN 18" OF MANHOLE VAULT..

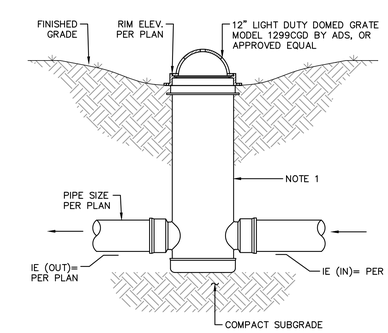
12 STANDARD MANHOLE
SCALE: NTS



FIELD ADJUSTMENT INSTRUCTIONS
1. REMOVE THE BODY FROM THE TOP OF THE INDICATOR POST ASSEMBLY.
2. CUT THE REQUIRED LENGTH OFF THE BOTTOM OF THE STANDPIPE FOR THE GROUND LINE TO MATCH UP WITH STANDPIPE GROUND LINE MARK.
3. CUT THE 1" SQ. EXTENSION AT A DISTANCE OF 9" ABOVE THE TOP OF THE STANDPIPE.
4. SET THE "OPEN" AND "SHUT" TARGETS FOR THE APPROPRIATE VALVE SIZE.
5. RE–ATTACH THE BODY TO THE TOP OF THE INDICATOR POST ASSEMBLY.
6. ALL POST INDICATOR VALVES SHALL BE INSTALLED WITH AN ELECTRONIC UL LISTED TAMPER SWITCH.
7. THERE SHALL BE 36" OF UNOBSTRUCTED CLEARANCE AROUND THE PERIMETER OF ALL POST INDICATOR VALVES.POST INDICATOR VALVE SHALL BE LOCATED AT A MINIMUM 5–ft FROM BUILDING.

NOTES:
1. VALVE CONTROLLING THE WATER SUPPLIES SHALL BE SUPERVISED IN THE OPEN POSITION SO THAT A CHANGE IN THE NORMAL POSITION OF THE VALVE WILL GENERATE A SUPERVISORY SIGNAL AT THE SUPERVISORY STATION.

13 STANDARD POST INDICATOR VALVE
SCALE: NTS



NOTES:
1. 12" NYLOPLAST DRAIN BASIN, OR APPROVED EQUAL

14 OVERFLOW INLET
SCALE: NTS

no.	revision	date
1.	SITE DESIGN REVIEW RESUBMITTAL #2	8/4/17
2.	SITE DESIGN REVIEW RESUBMITTAL #1 & PRELIMINARY ROOFING	5/8/17

16-066 job no.
DSE drawn
CNH checked
01-23-17 date

REGISTERED PROFESSIONAL ENGINEER 59412PE OREGON CRAIG N. HARRIS RENEWAL 6/30/19

AAI aplan associates, inc. ENGINEERING
1675 Commercial St. SE, Salem, OR 97302
503.820.3080 tel · 503.363.3358 fax · www.aainc.com
Project No. 2016.23.11

DWFRITZ Renovation
9900 SW Boeckman Rd.
Wilsonville, OR 97070

LANCE MUELLER & ASSOCIATES
ARCHITECTS · AIA
130 LAKESIDE · SEATTLE, WA 98122 · 206 325 2553

sheet C4.0

DEVELOPMENT REVIEW BOARD MEETING

MONDAY, OCTOBER 23, 2017
6:30 PM

VI. Public Hearing:

B. **Resolution No. 344. Republic Services: Temporary Storage Area for Drop Boxes. Ben Altman, Pioneer Design Group, LLC – Representative for Republic Services–WRI – Owner/Applicant.** The applicant is requesting approval of a Three (3) Year Temporary Use Permit for a gravel-surfaced storage yard for drop boxes at the Republic Services property at 10295 SW Ridder Road. The site is located on Tax Lot 1400, Section 2C, Township 3 South, Range 1 West, Willamette Meridian, City of Wilsonville, Clackamas County, Oregon. Staff: Daniel Pauly

Case File: DB17-0026 3-Year Temporary Use Permit

DEVELOPMENT REVIEW BOARD
RESOLUTION NO. 344

A RESOLUTION ADOPTING FINDINGS AND CONDITIONS APPROVING A THREE (3) YEAR TEMPORARY USE PERMIT FOR A GRAVEL-SURFACED STORAGE YARD FOR DROP BOXES AT THE REPUBLIC SERVICES PROPERTY AT 10295 SW RIDDER ROAD. THE SITE IS LOCATED ON TAX LOT 1400, SECTION 2C, TOWNSHIP 3 SOUTH, RANGE 1 WEST, WILLAMETTE MERIDIAN, CITY OF WILSONVILLE, CLACKAMAS COUNTY, OREGON. BEN ALTMAN, PIONEER DESIGN GROUP, LLC – REPRESENTATIVE FOR REPUBLIC SERVICES–WRI – OWNER/APPLICANT.

WHEREAS, an application, together with planning exhibits for the above-captioned development, has been submitted in accordance with the procedures set forth in Section 4.008 of the Wilsonville Code, and

WHEREAS, the Planning Staff has prepared staff report on the above-captioned subject dated October 12, 2017, and

WHEREAS, said planning exhibits and staff report were duly considered by the Development Review Board Panel B at a scheduled meeting conducted on October 23, 2017, at which time exhibits, together with findings and public testimony were entered into the public record, and

WHEREAS, the Development Review Board considered the subject and the recommendations contained in the staff report, and

WHEREAS, interested parties, if any, have had an opportunity to be heard on the subject.

NOW, THEREFORE, BE IT RESOLVED that the Development Review Board of the City of Wilsonville does hereby adopt the staff report dated October 12, 2017, attached hereto as Exhibit A1, with findings and recommendations contained therein, and authorizes the Planning Director to issue permits consistent with said recommendations for:

DB17-0026 Class 3 Three-year Temporary Use Permit for Gravel Surfaced Storage Yard.

ADOPTED by the Development Review Board of the City of Wilsonville at a regular meeting thereof this 23rd day of October, 2017 and filed with the Planning Administrative Assistant on _____. This resolution is final on the l5th calendar day after the postmarked date of the written notice of decision per *WC Sec 4.022(.09)* unless appealed per *WC Sec 4.022(.02)* or called up for review by the council in accordance with *WC Sec 4.022(.03).*

_____,
Shawn O'Neil, Chair - Panel B
Wilsonville Development Review Board

Attest:

_____
Shelley White, Planning Administrative Assistant

Exhibit A1
Staff Report
Wilsonville Planning Division
Republic Services, 3-Year Temporary Use Permit for Drop Box Storage

Development Review Board Panel 'B'
Quasi-Judicial Public Hearing
October 23, 2017

Hearing Date:	October 23, 2017
Date of Report:	October 12, 2017
Application Nos.:	DB17-0026 Republic Services, Temporary Storage Area for Drop Boxes

Request/Summary: The Development Review Board is being asked to review a 3-year Temporary Use Permit for a gravel-surfaced storage yard for drop boxes at Republic Services.

Location: 10295 SW Ridder Road. Corner of Ridder Road and Garden Acres Road. The property is specifically known as Tax Lot 1400, Section 2C, Township 3 South, Range 1 West, Willamette Meridian, City of Wilsonville, Clackamas County, Oregon.

Owner: Republic Services-WRI

Applicant Ben Altman, Pioneer Design Group

Comprehensive Plan Designation: Industrial

Zone Map Classification: PDI (Planned Development Industrial)

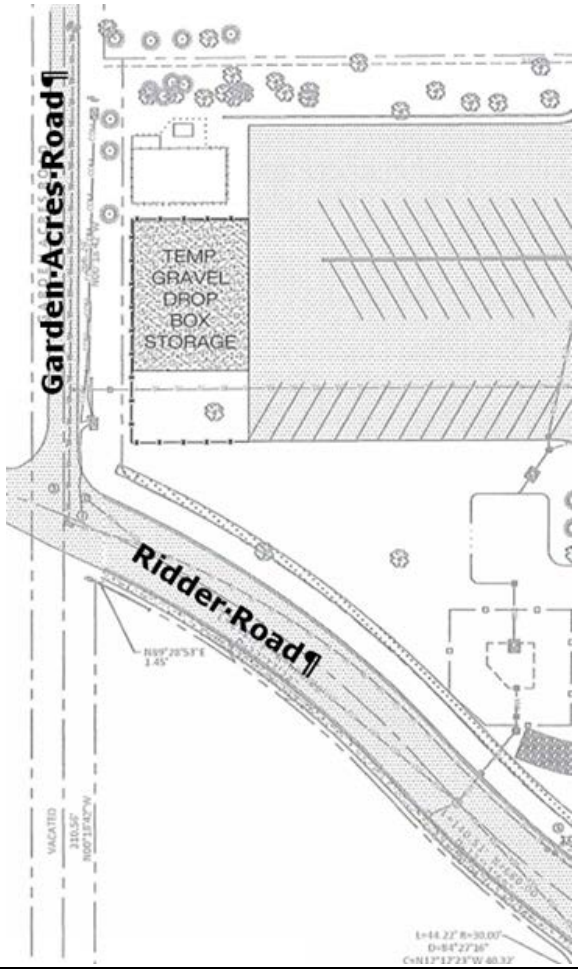
Staff Reviewer: Daniel Pauly AICP, Senior Planner

Staff Recommendation: **Approve with conditions** the requested 3-year Temporary Use Permit.

Applicable Review Criteria:

Development Code:	
Section 4.008	Application Procedures-In General
Section 4.009	Who May Initiate Application
Section 4.010	How to Apply
Section 4.011	How Applications are Processed
Section 4.014	Burden of Proof
Section 4.031	Authority of the Development Review Board
Section 4.135	Planned Development Industrial Zone (PDI)
Section 4.154	On-site Pedestrian Access and Circulation
Section 4.155	Parking, Loading, and Bicycle Parking
Section 4.163	Temporary Structures and Uses
Section 4.176	Landscaping and Screening
Sections 4.199.20 through 4.199.60	Outdoor Lighting
Sections 4.300 through 4.320	Underground Utilities

Vicinity Map



Background/Summary:

The temporary storage is needed to relocate drop boxes that been stored across the street at Interstate Trucking. Interstate has sold the property, so the storage boxes must be relocated immediately. The temporary storage will be needed until the Republic Services owned property is improved consistent with the Master Plan approved in 2016. Republic Services anticipates the improvements to the north to be a minimum of 2 years out and possible 3 years. They are thus requesting a 3-year temporary use permit.

Traffic:

The drop box storage is shifting an existing operation from an adjacent property, no traffic impact is anticipated. A traffic analysis is not required for a temporary use.

Conclusion and Conditions of Approval:

Staff has reviewed the Applicant's analysis of compliance with the applicable criteria. The Staff report adopts the applicant's responses as Findings of Fact except as noted in the Findings. Based on the Findings of Fact and information included in this Staff Report, and information received from a duly advertised public hearing, Staff recommends that the Development Review Board approve the proposed application (DB17-0026) with the following conditions:

Planning Division Conditions:

Request : DB17-0026 3-Year Temporary Use Permit

PDA 1.	The Applicant/Owner of the property shall ensure that the approved temporary use is established, operated, removed and the property restored to its pre-temporary use permit state in substantial compliance with the plans approved by the Development Review Board. Minor revisions may be approved by the Planning Director under a Class I administrative review process.

Master Exhibit List:

The following exhibits are hereby entered into the public record by the Development Review Board as confirmation of its consideration of the application as submitted. This is the exhibit list that includes exhibits for Planning Case File DB17-0026.

Planning Staff Materials

A1. Staff report and findings (this document)
A2. Staff's Presentation Slides for Public Hearing (to be presented at Public Hearing)

Materials from Applicant

B1. Applicant's Notebook including signed application, narrative, plans

Procedural Statements and Background Information:

1. The statutory 120-day time limit applies to this application. The application was received on September 12, 2017. On October 12, 2017 the application was deemed complete. The City must render a final decision for the request, including any appeals, by February 9, 2018.

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2. Surrounding land uses are as follows:

Compass Direction	Zone:	Existing Use:
North:	PDI	vacant
East:	PF	Bonneville Power Administration
South:	PDI	Industrial
West:	PDI	Industrial

3. Previous Planning Approvals:

   Case File 91PC33 – Stage I Master Plan Willamette Resources
   Case File 94DR18 – Site Design Review Willamette Resources
   Case File 99DB03 – Site Design Review Keller Drop Box
   Case File AR06-0020 Minor Site Alterations
   Case File DB14-0032 et. seq. Expansion including Maintenance Facility
   Case File DB15-0051 et. seq. CNG Fueling Station
   Case File DB16-0004 et. seq. Annexation and expansion including SORT Bioenergy facility
   Case File DB16-0012 Temporary Use Permit for Modular Office Buildings
   Case File AR16-0098 Modification of TUP from DB16-0012

4. The applicant has complied with Sections 4.013-4.031 of the Wilsonville Code, said sections pertaining to review procedures and submittal requirements. The required public notices have been sent and all proper notification procedures have been satisfied.

Findings:

NOTE: Pursuant to Section 4.014 the burden of proving that the necessary findings of fact can be made for approval of any land use or development application rests with the applicant in the case.

General Information

Application Procedures-In General
Section 4.008

The application is being processed in accordance with the applicable general procedures of this Section.

Initiating Application
Section 4.009

The application has been submitted on behalf of the property owner, Republic Service-WRI. The application form is signed by General Manager Jason Jordan.

Lien Payment before Approval
Subsection 4.011 (.02) B.

No applicable liens exist for the subject property. The application can thus move forward.

General Submission Requirements
Subsection 4.035 (.04) A.

The applicant has provided all of the applicable general submission requirements contained in this subsection.

Zoning-Generally
Section 4.110

This proposed development is in conformity with the applicable zoning district and general development regulations listed in Sections 4.150 through 4.199 have been applied in accordance with this Section.

Request: DB17-0026 3-year Temporary Use Permit

As described in the Findings below, the applicable criteria for this request are met or will be met by Conditions of Approval.

Temporary Use Permits

Temporary Uses Generally
Subsection 4.163 (.01)

1. The no structures are involved in the temporary use permit request. The permit is proposed for three years, good cause is shown as the applicant plans on constructing a permanent area on land they own to the north upon having the ability to fund and construct. No additional renewal is requested, and Stage I Plans show the future storage area to replace the temporary use, and funding is expected within the approved time frame preventing the temporary use from becoming permanent.

Temporary Use Permit Application Requirements
Subsection 4.163 (.02)

2. The applicant has submitted the required information including a clear description of the planned use, a statement the duration is up to three years, and a site plan. Condition of Approval PD 1 will ensure restoration of the site to pre-temporary use permit conditions.

"Just Cause" Factors for Temporary Use Permits
Subsection 4.163 (.03)

3. The reason for the applicant's request is they plan on constructing a permanent storage area within the next 3 years, but have an immediate need for storage area following the loss of off-site storage area due to a property sale. The applicant will proceed with the permanent storage upon having the ability to fund and construct it.

General Site Development Requirements

On-site Pedestrian Access and Circulation
Section 4.154

4. The subject storage yard is not planned to have pedestrian access, therefore consideration for pedestrian access and circulation have not been taken.

Parking and Loading
Section 4.155

5. The proposed storage yard is not anticipated to generate any additional parking demand as vehicles handling the drop boxes already park on the site and no additional employees will be added to handle drop boxes.

Outdoor Lighting
Section 4.199.20

6. No additional outdoor lighting has been proposed. If the applicant wishes to add anything but exempt lighting additional review by the City will be necessary.

Underground Installation of Utilities
Sections 4.300-4.320

7. All utilities associated with the temporary use must be installed underground. No indication of overhead utilities is shown in the submitted materials.

Outdoor Storage and Screening

Outdoor Storage Allowed
Subsection 4.135 (.05) A.

8. Pursuant to this section storage is allowed outside within the PDI Zone.

Outdoor Storage to be Orderly, Gravel or Better Surface, and Screened
Subsection 4.135 (.05) M.

9. As all storage the storage in the temporary area is required to be orderly. The temporary storage area will be surfaced with gravel, a combination of fencing and plantings will provide a site obscuring screen 6 feet tall consistent with the City's high-screen standard in Section 4.176.

High Screen Landscaping and Fully Sight-Obscuring Fence Standards
Subsection 4.176 (.02) E. and I.

10. Both of the high screen landscaping and fully sight-obscuring fence standards can provide the 6 foot sight obscuring screen required by Subsection 4.135 (.05) M. and 4.176 (.04). The temporary outdoor storage area must be screened on the north, east, and south. The applicant proposes a six-foot fence with fully sight-obscuring slats enhanced with a 6-foot wide landscape buffer providing the required screening.

Buffering and Screening
Subsection 4.176 (.04)

11. As described in Finding 10 above the proposed temporary outdoor storage area will be screening from ground level off-site view from adjacent streets and properties.

Screening to be Installed Prior to Use of Storage Area
Subsection 4.176 (.05)

12. The required screening will be installed prior to the City allowing storage of drop boxes on the property under this permit.

Land Use Application
City of Wilsonville

Updated Stage I Master Plan; Phase 4 Site Improvements Covered Glass Storage; and Temporary Use (Drop Box Storage)

Republic Services/WRI

September 13, 2017

APPLICANT /OWNER:
Republic Services - Willamette Resources Inc. (WRI)
10295 SW Ridder Road
Wilsonville, OR 97070
Contact: Jason Jordan, GM
jjordan4@republicservices.com
503-570-0626, Ext 228

APPLICANT'S REPRESENTATIVES:
Pioneer Design Group – Planning, Civil Engineering, Surveying
9020 SW Washington Square Dr., Suite 170
Portland, OR 97223
Contact: Ben Altman, Senior Planner/Project Manager
baltman@pd-grp.com
Dir. 971-708-6258

Application

WILSONVILLE
OREGON

29799 SW Town Center Loop E, Wilsonville, OR 97070
Phone: 503.682.4960 Fax: 503.682.7025
Web: www.ci.wilsonville.or.us

Planning Division
Development Permit Application

Final action on development application or zone change is required within 120 days in accordance with provisions of ORS 227.175

A pre application conference is normally required prior to submittal of an application. Please visit the City's website for submittal requirements

Pre-Application Meeting Date: _____

Incomplete applications will not be scheduled for public hearing until all of the required materials are submitted.

Applicant:
Name: Jason Jordan, GM
Company: Republic Services - WRI
Mailing Address: 10295 SW Ridder Road
City, State, Zip: Wilsonville, OR 97070
Phone: 503-570-0626, Ext 228 Fax: _____
E-mail: jjordan4@republicservices.com

Authorized Representative:
Name: Ben Altman
Company: Pioneer Design Group
Mailing Address: 9020 SW Washington SQ Rd. Suite 170
City, State, Zip: Portland, OR 97223
Phone: 971-708-6258 Fax: _____
E-mail: baltman@pd-grp.com

Property Owner:
Name: Same
Company: _____
Mailing Address: _____
City, State, Zip: _____
Phone: _____ Fax: _____
E-mail: _____

Property Owner's Signature:
Printed Name: Jason Jordan Date: 9-7-17

Applicant's Signature: (if different from Property Owner)
Printed Name: Jason Jordan Date: 9-7-17

Site Location and Description:
Project Address if Available: 10295 SW Ridder Road Suite/Unit _____
Project Location: _____
Tax Map #(s): T3S R1W 2C Tax Lot #(s): 1400 County: ■ Washington □ Clackamas

Request:
Steel framed, Metal Covered Storage area for recyclable glass; plus 3-year Temporary Use Permit for drop box storage.

Project Type: Class I □ Class II □ Class III ■

□ Residential □ Commercial ■ Industrial □ Other: _____

Application Type(s):

□ Annexation	□ Appeal	□ Comp Plan Map Amend	□ Parks Plan Review
□ Final Plat	□ Major Partition	□ Minor Partition	□ Request to Modify Conditions
□ Plan Amendment	□ Planned Development	□ Preliminary Plat	■ Site Design Review
□ Request for Special Meeting	□ Request for Time Extension	□ Signs	□ Stage II Final Plan
□ SROZ/SRIR Review	□ Staff Interpretation	□ Stage I Master Plan	□ Variance
□ Type C Tree Removal Plan	□ Tree Permit (B or C)	■ Temporary Use	□ Other (describe)
□ Villebois SAP	□ Villebois PDP	□ Villebois FDP	_____
□ Zone Map Amendment	□ Waiver(s)	□ Conditional Use	

City of Wilsonville
Community Development Department
Engineering and Planning Divisions

29799 SW Town Center Loop E
Wilsonville, OR 97070
Phone: 503 682-4960; Fax 503 682-7025
adams@ci.wilsonville.or.us

This form must be completed and returned to Steve Adams, Development Engineering Manager, to initiate a traffic Scope of Services, a request for a traffic study waiver, a determination of de minimus traffic impact, or other traffic-related issues.

REQUEST FOR TRAFFIC STUDY – PLEASE READ COMPLETELY

_____ Traffic Study Scope of Services X Waiver from Traffic Study requirement

Other Traffic Related Request _____

Requested by: BEN ALTMAN Pioneer Design Group Date: 9-12-17

Property address: 10295 SW Ridder Road

Legal description: Tax lot(s) 1400 Section T3S R1W 2C, Wash Co.

Project name: REPUBLIC SERVICES - MINOR SITE IMPROVEMENTS

Property owner:
Name: JASON JORDAN, GM REPUBLIC SERVICES-WRI
Address: 10295 SW Ridder Rd.

Applicant:
Name: Same as OWNER
Address: _____

Authorized representative:
(Contact person)*
Name: BEN ALTMAN
Company: PIONEER DESIGN GROUP
Address: 9020 SW WASHINGTON SQ. Rd. SUITE 170 PORTLAND 97223
Phone: 971-708-6258 Email: baltman@pd-grp.com

**Note: This person will receive all correspondence regarding traffic analysis.*

NOTE: SITE IMPROVEMENTS are related TO EXISTING OPERATIONS. NO NET CHANGE IN TRAFFIC IMPACTS.

***Process:** A Request, along with a site plan and project description must be submitted to the Engineering Division. The request is forwarded to the City's traffic consultant who will prepare a Scope of Services, which will include the necessary fee. The prepared Scope will be reviewed by the Engineering Division, and once approved, will be forwarded to the authorized representative listed above. When the applicant reviews and submits the fee indicated in the Scope of Services, the scope will be authorized by Staff and forwarded to the traffic consultant. When the traffic study has been received and approved by the City's Engineering Division, it will be forwarded to the applicant and the Planning Division.*

A request for a Waiver from a traffic study will be reviewed by the Community Development Director and the Engineering Division and the requestor will be notified by mail.

Note: If the project description and/or site plan change from what was originally submitted, additional traffic analysis and fees may be required.

Compliance Narrative

Land Use Application
City of Wilsonville

Updated Stage I Master Plan; Phase 4 Site Improvements Covered Glass Storage; and Temporary Use (Drop Box Storage)

Republic Services/WRI

September 13, 2017

APPLICANT /OWNER:
Republic Services - Willamette Resources Inc. (WRI)
10295 SW Ridder Road
Wilsonville, OR 97070
Contact: Jason Jordan, GM
jjordan4@republicservices.com
503-570-0626, Ext 228

APPLICANT'S REPRESENTATIVES:
Pioneer Design Group – Planning, Civil Engineering, Surveying
9020 SW Washington Square Dr., Suite 170
Portland, OR 97223
Contact: Ben Altman, Senior Planner/Project Manager
baltman@pd-grp.com
Dir. 971-708-6258

FACT SHEET:

Project Name:	**Republic Services/WRI – Phases 4**
Type of Application:	**Type III, Modified Stage I Master Plan, with Stage II Design Review for Phases 4 - Covered Glass Storage Area; and 3-Year Temporary Use Permit for Drop Box Storage.**
Site Location:	10295 SW Ridder Road
Tax Lots:	T3S R1W, Map 2C, Lot 1400, Washington County
Land Area:	Gross Site 16.84 acres (portion of)
Comp. Plan/Zoning:	**Industrial/PDI,** Planned Development Industrial
Property Owner:	Willamette Resources, Inc., Wholly-owned subsidiary of Republic Services, Inc.

Owner/Applicant
Republic Services - Willamette Resources Inc. (WRI)
10295 SW Ridder Road
Wilsonville, OR 97070
Contact: Jason Jordan, GM
jjordan4@republicservices.com
503-570-0626, Ext 228

Design Team:

Pioneer Design Group
Planning, Survey, Civil Engineering
9020 SW Washington Sq. Rd., #170
Portland, OR 97223
Ben Altman, Project Manager
971-708-6258 direct
baltman@pd-grp.com

Metalic Building Company
Building Designer & Manufacturer
7301 Fairview - PO Box 40338
Houston Texas 77240
Jeffery Conrad, PE, Design Engineer
713-466-7788

Oregon Pacific Construction
Construction Contractor
180 South Pacific Highway
Woodburn, OR 97001
Contact: Paul Kahle
503-981-8147
Paul@oregonpacificconstruction.com

I. INTRODUCTION

Brief Project History

The existing Republic site was initially developed in 1995 by United Disposal (then local franchised hauler) and Willamette Resources, Inc. (WRI), a subsidiary of Waste Control, the parent company out of Albany, Oregon. Subsequently United (Waste Control) was acquired by Allied Waste, who was later acquired by Republic Services.

WRI is now a wholly-owned subsidiary of Republic Services. WRI is the current registered owner of Tax Lots 600, 601, as well as 1400, Map T3S R1W 2C. While WRI is the land owner, the following narrative generally refers to Republic Services as the applicant and facility operator.

The original site improvements, including the material recovery facility (MRF) was constructed by WRI, under plans approved by the DRB (93DR03 & 91PC33). The MRF, accepts mixed solid waste from haulers around the region. The material is sorted and reloaded and shipped to recycling operations; or non-recyclable waste is trucked to the landfill.

The current zoning of the primary site is PDI, Planned Development Industrial. The site is currently developed with:

- Administrative Offices;
- Solid Waste Material Recovery Facility (MRF) (94DR18 and 99DB03);
- Fleet Maintenance Shop (DB14-0032-0035); and
- CNG Fueling facilities (DB15-0051-0053 & DB15-0057

However, the north annexed property is zoned PDI-RSIA, consistent with the Coffee Creek Industrial Area Master Plan.

The existing MRF contains 56,992 square feet and 3,900 square feet of office space.

In 2014 a 13,750 square foot maintenance building was constructed to the west of the MRF. And, in 2015 an application was approved for CNG fueling facilities, together with other minor site modifications, related to truck parking and container storage. Plus in late 2016 approval was obtained for a new 3,600 square foot temporary operations office, which replaced the two prior smaller units. The new unit is located west of the maintenance shop.

More recently, in early 2016 Stage II Development Plans were approved for SORT Bioenergy to construct an organic food waste processing facility, with anaerobic digester, on property owned by Republic Services, just north of the MRF. The food waste is currently collected by haulers to the MRF and then reloaded and haul to the Pacific Region Compost facility (PRC) in Corvallis.

Final permitting for the SORT facility has proceeded, with DEQ issuing the Air Handling and Water Discharge permit. And, Metro issued an Operating License. However, the necessary Metro Franchise approval from Metro is still pending, expected by this fall.

The franchise approval, is essentially a "flow control measure," which is subject to and RFP process. At this point, Metro is expected to issue the RFP in June, with a decision anticipated in the summer of 2017. It is anticipated that once the Metro franchise is secured permitting and construction of the SORT facility will proceed in 2018, and will likely take another 12-18 months to complete construction and commission the facility.

2016 Stage I Master Plan, with Annexation – Minor Modification of Phasing

Following the CNG conversion, Republic entered into a partnership with SORT Bioenergy, for development of an organic waste recovery facility (anaerobic digester) on property owned by Republic Services. This partnership is designed to initiate new programs with new technologies to help protect the environment through landfill diversion, energy recovery and nutrient recycling.

To facilitate the SORT development, Republic Services initiated annexation and rezoning, of their properties to the north of the existing facilities. A Modified Stage I Master Plan was prepared (DB2016-0004, DB16-0005 & 0006). The 2016 Stage I Master Plan reflected the annexation of Tax Lot 600 (Consolidated) and the proposed SORT Facility (DB16-0007-0011). It also reflects anticipated additional site development by Republic on the remainder of Tax Lot 600. The proposed SORT facility was incorporated into Republic's updated Master Plan approved by the DRB. The Site Development Plans were approved consistent with the PDI-RSIA, in compliance with the Coffee Creek Industrial Area Master Plan.

With this current application, Republic is proposing minor modification of the 2016 Master Plan to reflect Republic's most current anticipated Phasing, and also to add the Covered Glass Storage Area. The updated 2017 master plan reflects infrastructure changes being coordinated with the City, related to facilitating implementation of the Coffee Creek Industrial Area Master Plan. The new road alignment and curve geometry minimizes any further significant on-site impacts to Republic and will clearly define the southern and western boundaries of the site.

With the Garden Acres/Ridder Roads re-alignment Republic's Master Plan has been revised to eliminate the third (west) access from Ridder Road. The third access is now proposed for the annexed property from Garden Acres Road, at the north end of the property. This future access will accommodate the planned employee parking and relocated container storage.

Phasing Schedule - Update

The timing for phasing of anticipated site improvements is somewhat of a guessing game. The preferred schedule is subject to change for various reasons, and subject to change from time to time.

The phasing schedule can be affected and altered by various factors including:

- Operational and functional priorities;
- Changes in recycling markets and government regulations; and
- Most importantly, subject to corporate budget approval.

For example, construction of the SORT facility, previously scheduled as Phase 3, is still a priority. However, it has been delayed, pending the necessary franchise approval from Metro. The Metro franchise RFP release is now anticipated in mid-May, with a final decision sometime this summer. If SORT BioEnergy is successful with their Metro franchise proposal, construction would be expected to begin late 2017 or early 2018.

Last fall (October 2016,) given immediate operational needs with the consolidated site, including truck maintenance, it was necessary to make provisions for Temporary Operations Offices. The temporary structure is located west of the maintenance shop. Consequently the expanded and relocated temporary offices became Phase 3, with SORT next in line as Phase 4.

However, while SORT remains in the queue, as a priority, this project has been delayed by Metro's franchise RFP process. In the meantime, Republic is now faced with a new priority, which is to provide the cover for the glass storage area. Therefore the glass storage is now Phase 4, thus moving SORT to Phase 5.

Table 1, below reflects the current and proposed land area allocation for the various existing and proposed uses on-site. Republic's current (2017) best known phasing priorities are as follows:

- **New Phase 4** - Covered Glass Storage Area, the subject of this application, with immediate construction following permit approvals 2017, plus Temporary Use Permit for drop box storage;
- Phase 5 - Construction of the SORT facility, anticipated in 2018-19;
- Phase 6 - Construction of the operations and maintenance parking area and new drop box storage area. These improvements are planned on the western portion of the recently annexed property north of the maintenance shop anticipated 2018-19;
- Phase 7 involves complete buildout of the CNG Fueling stations and truck parking area (30 additional trucks) anticipated 2019-20. It is possible this phase could be constructed in two segments. The first segment on the existing the pavement, with the second segment on new pavement to the west, as shown;
- Phase 8 – This phase will be construction of the permanent Operations Offices, currently anticipated for 2020 of later. At this time we are showing this structure to be relocated to the north of the shop, more closely oriented with the new employee parking area. With this relocation, the temporary facility can remain operational during the construction of the new offices, pending corporate funding approval; and

- Phase 9 – The final phase of site development anticipated is expansion of the MRF, or construction of a secondary facility designed for a higher level of material recovery.

Republic's operational priorities are to complete construction of Phases 4-8 as quickly as possible, given appropriate corporate funding allocations. If sufficient funding becomes available some of these phases may be bundled to complete work sooner.

Table 1

2017 UPDATED STAGE I MASTER PLAN
Existing and Proposed Site Improvements

Type of Land Use	Original Ground Foot Print Square Feet	Phases 2-4 Ground Foot Print Square Feet	Percent Foot Print, With Proposed
Material Recovery Facility	56,992		
Truck Maintenance Facility		13,750 Phase 2	
CNG Fueling		CNG Compound 2,340 New Phase 3	
Administrative Offices Temp Office	4,850	<3,960 future Phase 6> 3,600 (Temp. Phase 3)	
Covered Glass Storage		**2,240 (phase 4)**	
Total Built Building Footprint	**61,842**	**78,922**	**15.14**
Parking & Drive Lanes – • 42 cars spaces • 41 truck spaces • Truck Fueling/Park • **Temp Drop Box Storage**	214,332	250,054 26,052 **6,888 Gravel (Phase 4)**	 52.95 **1.21**
Landscaping – Improved Unimproved	132,468 112,735	160.040	30.70
Total Tax Lot 1400	**521.377**		**100**
Annexed Property – Future Development		429,350	
• SORT			
○ Building/Equip		98,147	22.86
○ Perking/Paved		23,557	5.49
○ Landscaping		41,353	9.63
• 70 car spaces		55,500	12.93
• Drop Box Storage		79,150	18.43
• Landscaping/Storm Facility		47,824	11.14 6% min + SORT
• Future MRF Expansion		83,819	19.52
Total Site		**429,350**	**100**

Proposed Covered Glass Storage

New Phase 4 - Part of the processing operation for the MRF includes source separated glass for recycling. Prior to processing, the separated glass is currently stored in a bunker (staked concrete barriers) located off the northeast corner of the MRF building.

The current bunker storage area is not covered. In order to comply with current storm water quality standards, this outdoor glass storage areas needs to be covered, similar to the covers now required for typical trash enclosures. The cover provides for enhanced protection of the storm water system from contamination. Any liquids spilled under the cover will be contained and discharged to sanitary sewer, rather than the storm drainage system.

Therefore this application seeks design review approval to relocate the glass storage area and install the required storage area cover, with sanitary sewer connection. The proposed new location is adjacent to the east side of the MRF, next to the truck wash bay. This area is currently used to store recyclable metal, and is on a concrete pad, so there is will be no new net increase in impervious cover.

The new covered storage area will be approximately 2,240 square feet. This new location improves material flow and also affords easy access to the sanitary sewer line, which serves the truck wash.

The proposed canopy cover will be steel framed with metal roof matching the existing building, similar to the truck wash bay. The canopy will have a shed roof, sloping to the east, and extending 10 feet past the concrete pad to cover trucks during off-loading (parked parallel to the canopy). The peak of the canopy adjacent to the building will be 30 feet in height, tapering to 25 feet at the east edge.

The original development approvals for the MRF and related site improvements were granted under (91PC33 & 93DR03). Generally the prior adopted findings remain valid to the current modification request. But, we have provided supplemental findings, more specifically related to the proposed covered storage area and the extended temporary use permit for drop box storage along the west edge of the site.

Temporary Drop Box Storage

Also included with Phase 4 is a Temporary Use Permit for drop box storage, west of the CNG fueling stations. Republic Services has obtained a 30 day Temporary Use Permit for drop box storage. The temporary storage is needed to relocate drop boxes that have been storage across the street at Interstate Trucking. Interstate has sold the property, so the storage boxes must be relocated immediately.

However, this temporary storage will actually be needed until the annexed property to the north is improved, per the Master Plan, estimated for a minimum of 2 years, and possibly 3 years. Therefore Republic is requesting a 3-Year Temporary Permit.

The proposed location for the storage is the area identified on the Master Plan for future expansion of the CNG fueling stations. Approximately 6,888 square feet of gavel will be placed as a base for the box storage. When Phase 7 funding is approved by Corporate, this area will be paved to complete the additional fueling stations.

The supporting findings for this Temporary Permit are presented in the attached Compliance Narrative prepared for the Administrative 30-Day permit.

Surrounding Development

To the north and west of the Material Recovery Facility is undeveloped industrial land, which is currently not within the City Limits, but is within the urban growth boundary and the Coffee Creek Industrial Area. There are also a few rural residential uses remaining along Garden Acres Road.

To the east is BPA Substation.

To the south is the Tarr Oil Card-lock fuel station, Hartung (Oregon) Glass and Interstate Distributors.

Existing Access and Road Improvements

The subject site has excellent collector street access via Ridder Road, which intersects with 95th Avenue, approximately one half mile to the east. 95th Avenue intersects with SW Boones Ferry Road (arterial) just under a half mile to the north, and with Boeckman Road (arterial) about one mile to the south. The existing facility has two access drives off of Ridder Road.

As part of the 2014 land use approvals, Republic dedicated 6.5 feet for additional right-of-way along the site frontage of Ridder and 11.5 feet along their frontage on Garden Acres Roads. However frontage improvements were deferred. Scheduling of these frontage improvements is being coordinated with the City through a Development Agreement, to coincide with Urban Renewal funded improvements, particularly Garden Acres Road, and associate utilities.

In conjunction with the anticipated improvements for Garden Acres Road, Republic anticipates adding a third driveway access to the west off of Garden Acres, to serve the planned maintenance/operations employee parking area.

Design Team

As required the Professional Design Team for this project includes the following:

- Pioneer Design Group, Planning, Civil Engineering and Surveying
- Metalic Building Company, Building Designer/Manufacturer
- Oregon Pacific Construction, Construction Contractor
- GeoPacific Engineering, Geotechnical Engineering

- Morgan Holen & Associate, Arborist
- Laurel McDonald, Landscape Architect

Proposed – New Stage II, Final Development Plans

Covered Glass Storage Area

The proposed glass storage area is to be covered with a steel framed structure and metal roof, matching the existing building. The structure will be extended off of the existing MRF building, adjacent t the truck wash bay, and will cover an area of approximately 2,240 square feet.

The sides and front will be open, except for perimeter bunker blocks, to contain the stored material, and allow a front loader to push against the blocks for loading. The structure will be a shed roof design with the maximum height of 30 feet at the building tie, tapering to 25 feet at the outer edge (east).

The canopy will cover a portion of the existing concrete paved area (40' x 46') adjacent to the MRF. The cover will extend an additional 10 feet over the asphalt paving to provide cover for truck off-loading and loading.

Traffic Impact Assessment

The current traffic impacts for Republic's operations have been considered as part of all the prior approvals for the maintenance shop, and accounted for the existing 60 truck fleet. It is also noted that the planned new maintenance office expansion (phase 6) was accounted for in the prior DKS Traffic Impact Reports.

This proposed covered storage area is a minor improvement related to current operations and will not have any net effect on the existing trip generation.

These master planned improvements have been addressed in prior DKS Traffic Impact Reports as part of the Annexation and SORT approvals. Required road improvements are being addressed by a Development Agreement, and coordinated with the City's urban Renewal construction schedule.

Therefore, for these improvements, the applicant is requesting a Waiver for the Traffic Impact, as these site improvements will have no net effect on site generated traffic.

II. Comprehensive Plan Compliance

The subject property is designated for industrial use on the Comprehensive Plan Map. Consistent with the Industrial Plan designation, the property is zoned Planned Development Industrial (PDI).

There are no identified flood plains or natural hazards or significant natural resource areas associated with this property. The property is also not within a designated Area of Special Concern.

> ***Industrial Development***
>
> ***Wilsonville is basically a compact City, for this reason all industrial development should be compatible with adjacent or nearby commercial and/or residential areas. Therefore, there is little need for more than one industrial designation. For all practical purposes, all development should be guided by the same general standards dealing with intensity, etc.***

RESPONSE

The current and proposed uses for the property are industrial; and they are consistent with the prior land use approvals, thereby being consistent with the Industrial Plan and Zone designations. The original planning approvals confirmed that the MRF is an appropriate industrial use, consistent with Wilsonville's goals and design objectives.

The company's waste hauling and material recovery activities are an essential function with an urban environment.

Conclusion – Urban Services

All necessary primary urban services are available, and serving the building (MRF) with adequate capacities, to support the proposed development. The proposed storage area cover does not require any additional utility services.

CONCLUSION – Comprehensive Plan Compliance

Except for changes to the phasing schedule, the Stage I Master Plan has previously been approved as being consistent with the Comprehensive Plan and PDI zoning.

Based on the response findings above, we believe we have demonstrated that the proposed Development Plans will be in full compliance with the applicable policies, objectives, and implementing measures of the Comprehensive Plan, Transportation System Plan, and Coffee Creek Industrial Area Master Plan.

III. Development Code Compliance

Consistent with the Industrial designation in the Comprehensive Plan, the current developed portion of the subject property is zoned PDI, Planned Development Industrial.

To simplify the format, Code provisions are generally addressed in the order in which they appear in the Code.

> ***Section 4.117. Planned Development Industrial.***
>
> ***(.01) All industrial developments, uses, or activities are subject to performance standards. If not otherwise specified in the Planning and Development Code, industrial developments, uses, and activities shall be subject to the performance standards specified in Section 4.135 (.07) (PDI Zone).***
>
> ***Section 4.118. Standards applying to all Planned Development Zones:***
> ***(.01) Height Guidelines: In "S" overlay zones, the solar access provisions of Section 4.137 shall be used to determine maximum building heights. In cases that are subject to review by the Development Review Board, the Board may further regulate heights as follows:***
> ***A. Restrict or regulate the height or building design consistent with adequate provision of fire protection and fire-fighting apparatus height limitations.***
> ***B. To provide buffering of low density developments by requiring the placement of three or more story buildings away from the property lines abutting a low density zone.***
> ***C. To regulate building height or design to protect scenic vistas of Mt. Hood or the Willamette River.***

RESPONSE

The City has not adopted an "S" Overlay zone for the area of Republic's facility. The proposed height of the covered storage area will be consistent with the existing building, and thereby maintains compliance with the PDI code standards. The structure can be adequately protected by available fire-fighting apparatus, and on-site hydrants.

There is limited nearby rural residential development. However, screening and buffering has already been provided from the developed portion of the property. Further, the proposed glass storage area is located on the east side of the building, which provides more screening and buffering for the current nearby residential uses.

The temporary drop box storage will be to the west of the truck fueling/parking stations. The truck parking and fueling stations are located to the west of the maintenance shop, where there is already approved screening and fencing. The existing fencing will be relocated to the perimeter of the temporary storage area, and additional landscape screening, consistent with the prior approval will be added along the Garden Acres Road frontage.

> ***(.03) Notwithstanding the provisions of Section 4.140 to the contrary, the Development Review Board, in order to implement the purposes and objectives of Section 4.140, and based on findings of fact supported by the record may:***

RESPONSE

The site improvements have been designed to comply with all applicable standards, including the 30 foot perimeter setbacks. Therefore no waiver of Standards is being requested.

The adjacent streets all have adequate rights-of-way and therefore no dedication of property for streets, pathways, and bicycle pathways is required to comply with adopted Facilities Master Plans. Republic Services is executing a Development Agreement with the City addressing funding for planned street improvements.

Therefore the development complies with the applicable provisions of this section.

> ***Section 4.135 Planned Development Industrial Zone.***
>
> ***(.01) Purpose. The purposed of the PDI zone is to provide on-going opportunities for varied industrial operations, along with a range of related and compatible uses; to provide the flexibility to accommodate the changing nature of industrial employment centers; and to facilitate the redevelopment of under-utilized industrial sites.***
>
> ***(.02) The PDI Zone shall be governed by Section 4.140, Planned Development Regulations, and as otherwise set forth in this Code.***
>
> ***(.03) Uses that are typically permitted:***
>
> - ***A. Warehouses and other buildings for storage of wholesale goods, including cold storage plants.***
> - ***B. Storage and wholesale distribution of agricultural and other bulk products, provided that dust and odors are effectively contained within the site.***
> - ***C. Assembly and packing of products for wholesale shipment***
> - ***D. Manufacturing and processing***

RESPONSE

As stated, *"the purpose of the PDI zone is to provide opportunities for a variety of industrial operations and associated uses"*. The MRF and Disposal operations conducted at this site have previously been approved as allowable industrial uses in the PDI Zone. The prior approved truck maintenance operations and the CNG fueling are a normal and customary accessory uses to the current permitted operations.

The glass storage (recycling) is also a normal operational function, which has occurred on the site for years. The proposed changes involve relocating the storage area and installing a canopy cover over the storage area. The area under the cover will direct drainage to sanitary sewer. Roof drains will splash to the pavement where it will flow to existing storm drains.

The drop box storage is also an existing operational use. With other operational priorities for utilization of existing paved areas, some of the drop boxes have been stored off-site at Interstate Distributors, across Ridder Road. However, this property has recently been sold, and the new owner will not allow the continued storage. Therefore the boxes must

be relocated on-site. Ultimately these boxes will be stored on the annexed property to the north, once funding is approved. In the interim, they are proposed to be stored in the area master planned for the future expansion of the truck fueling/parking, west of the shop.

There is no retail use associated with this new development or the campus in general. Therefore the proposed development and uses are allowed uses consistent with the purpose of the PDI Zone.

The existing development, lot pattern and abutting road network establish the existing block spacing. The approved 2016 Stage I Master Plan has appropriately addressed planned future street alignments and improvements consistent with the updated 2013 TSP.

Consistent with the Transportation System Plan (TSP) and the prior SORT approval, the City anticipates a future realignment of Ridder Road and Garden Acres Roads to create a north/south collector street intersecting with Day Road. The preliminary alignment for this road is reflected o the updated Stage I Master Plan.

The Site Master Plan also anticipates adding a third access to be located at the northwest corner of the site (Annexed Area) off of Garden Acres Road. This access will serve the planned employee parking area.

Therefore we conclude that the proposed development complies with the PDI zoning provisions in this section.

> ***(.05) <u>Performance Standards</u>. The following performance standards apply to all industrial properties and sites within the PDI Zone, and are intended to minimize the potential impacts of industrial activities on the general public and on other land uses or activities. They are not intended to prevent conflicts between different uses or activities that may occur on the same property.***
>
> ***A. All uses and operations except storage, off-street parking, loading, and unloading shall be confined, contained, and conducted wholly within completely enclosed buildings, unless outdoor activities have been approved as part of Stage II, Site Design or Administrative Review.***
>
> ***B. Vibration: Every use shall be so operated that the ground vibration inherently and recurrently generated from equipment other than vehicles is not perceptible without instruments at any boundary line of the property on which the use is located.***
>
> ***C. Emission of odorous gases or other odorous matter in quantities as detectable at any point on any boundary line of the property on which the use is located shall be prohibited.***
>
> ***D. Any open storage shall comply with the provisions of Section 4.176, and this Section.***
>
> ***E. No building customarily used for night operations, such as a baker or bottling and distribution station, shall have any opening, other than stationary windows or required fire exits, within one hundred (100) feet of any residential district and any space used for loading or unloading commercial vehicles in connection with such operation shall not be within one hundred (100) feet of any residential district.***
>
> ***F. Heat and Glare:***
>
> ***a. Operations producing heat or glare shall be conducted entirely within an enclosed building.***
>
> ***b. Exterior lighting on private property shall be screened, baffled, or directed away from adjacent residential properties. This is not intended to apply to street lighting.***

G. Dangerous Substances: Any use which involves the presence, storage or handling of any explosive, nuclear waste product, or any other substance in a manner which would cause a health or safety hazard for any adjacent land use or site shall be prohibited.

H. Liquid and Solid Waste:

a. Any storage of wastes which would attract insects or rodents or otherwise create a health hazard shall be prohibited.

b. Waste products which are stored outside shall be concealed from view from any property line by a sight-obscuring fence or planting as required in Section 4.176.

c. No connection with any public sewer shall be made or maintained in violation of applicable City or State standards.

d. No wastes conveyed shall be allowed to or permitted, caused to enter, or allowed to flow into any public sewer in violation of applicable City or State standards.

e. All drainage permitted to discharge into a street gutter, caused to enter or allowed to flow into any pond, lake, stream or other natural water course shall be limited to surface waters or waters having similar characteristics as determined by the City, County, and State Department of Environmental Quality.

f. All operations shall be conducted in conformance with the City's standards and ordinances applying to sanitary and storm sewer discharges.

I. Noise: Noise generated by the use, with the exception of traffic noises from automobiles, trucks, and trains, shall not violate any applicable standards adopted by the Oregon Department of Environmental Quality governing noise control in the same of similar locations.

J. Electrical Disturbances. Except for electrical facilities wherein the City is preempted by other governmental entities, electrical disturbances generated by uses within the PDI Zone which interfere with the normal operation of equipment or instruments within the PDI Zone are prohibited.

K. Discharge Standards: There shall be no emission of smoke, fallout, fly ash, dust, vapor, gases, or other forms of air pollution that may cause a nuisance or injury to human, plant, or animal life, or to property. Plans of construction and operation shall be subject to the recommendations and regulations of the State Department of Environmental Quality. All measurements of air pollution shall be by the procedures and with equipment approved by the State Department of Environmental Quality or equivalent and acceptable methods of measurement approved by the City. Persons responsible for a suspected source of air pollution upon the request of the City shall provide quantitative and qualitative information regarding the discharge that will adequately and accurately describe operation conditions.

L. Open burning is prohibited.

M. Storage:

a. Outdoor storage must be maintained in an orderly manner at all times.

b. Outdoor storage area shall be gravel surface or better and shall be suitable for the materials being handled and stored. If a gravel surface is not sufficient to meet the performance standards for the use, the area shall be suitably paved.

c. Any open storage that would otherwise be visible at the property line shall be concealed from view at the abutting property line by a sight obscuring fence or planting not less than six (6) feet in height.

N. Landscaping:

a. Unused property, or property designated for expansion or other future use, shall be landscaped and maintained as approved by the Development Review Board. Landscaping for unused property disturbed during construction shall include such things as plantings of ornamental shrubs, lawns, native plants, and mowed, seeded fieldgrass.

b. Contiguous unused areas of undisturbed fieldgrass may be maintained in their existing state. Large stands of invasive weeds such a Himalayan Blackberries, English Ivy, Cherry Laurel, Reed Canary Grass, or other identified invasive plants shall be removed and/or mowed at least annually to reduce fire hazard. These

unused areas, located within a phased development project or a future expansion cannot be included in the area calculated to meet the landscape requirements for the initial phase(s) of the development.

c. ***Unused property shall not be left with disturbed soils that are subject to siltation and erosion. Any disturbed soil shall be seeded for complete erosion cover germination and shall be subject to applicable erosion control standards.***

RESPONSE

Consistent with prior approvals, all existing buildings and operations comply with the above performance standards. As described herein, the proposed covered glass storage area has been designed, and will be constructed and operated maintaining consistency with these standards. The location is on the east side of the MRF, far from and adequately screened from street view, so no additional screening is necessary.

Covered Storage Area

The proposed cover provides for appropriate separation of storm and sanitary discharges. The internal (under-over) drain will be connected to sanitary sewer, while roof run-off will be directed to the existing on-site storm drainage system. This design, coupled with the existing water quality facilities will further enhance and protect storm water quality.

There are restrooms located near the northeast corner of the MRF, plus the truck wash area has a sanitary sewer connection. Drainage from under the cover will be collected and directed to a sanitary sewer drain, and routed to existing system inside the MRF. However, with the cover, drain under the cover is expected to be minimal, primarily related to any liquids remaining in glass containers. Periodic cleaning will also contribute to sanitary discharges. All such discharges will be managed consistent with the waste water management plan Republic maintains with the City.

There is a rural residential area to the northwest of the property along Garden Acres Road. All other surrounding properties are industrial. The overall site design has given appropriate attention to minimizing off-site impacts, such as noise emitting door openings, odors, light, etc. The MRF provides significant sound blocking from the operations on the east side of the building for the residential uses to the west.

Noise Mitigation

The glass storage activity already exists on-site, so the site modifications for the covered glass storage are not anticipated to create any significant new noise impacts, outside of the normal decibel range for industrial uses.

While there is existing truck activity in this general area of the site, the temporary box storage will move operations closer to the street. This may result in a slight increase in off-site noise, from truck maneuvers, back-up beepers, etc. However, there will not be any night operations related to the box storage.

Temporary Box Storage

This are will be close to the street, but will be screened by slatted fencing and additional buffer landscaping.

Access for this area will be from existing pavement internal to the site. There will be no access from Garden Acres Road.

Liquids and Solid Waste

Only empty drop boxes will be stored at this temporary location. Typically the boxes are cleaned at the truck wash bay prior to storage.

Storm Drainage

Storm drainage for the temporary gravel storage area will be managed consistent with the existing on-site system serving the truck fueling area. The gravel will be graded to drain to the existing pavement, from where it is directed to the on-site water quality and detention facilities. The Drainage Report prepared for the Fueling Stations has been included with the submittal documents.

(.08) ***Other Standards:***

- ***A.*** ***Minimum Individual Lot Size:*** ***No limit save and except as shall be consistent with the other provisions of this Code (e.g., landscaping, parking, etc.).***
- ***B.*** ***Maximum Lot Coverage:*** ***No limit save and except as shall be consistent with the other provisions of this Code (e.g., landscaping, parking, etc.).***
- ***C.*** ***Front Yard Setback:*** ***Thirty (30) feet. Structures on corner or through lots shall observe the minimum front yard setback on both streets. Setbacks shall also be maintained from the planned right-of-way shown on any adopted City street plan.***
- ***D.*** ***Rear and Side yard Setback:*** ***Thirty (30) feet. Structures on corner or through lots shall observe the minimum rear and side yard setback on both streets. Setbacks shall also be maintained from the planned right-of-way shown on any adopted City street plan.***
- ***E.*** ***No setback is required when side or rear yard abuts on a railroad siding.***
- ***F.*** ***Corner Vision: Corner lots shall have not sight obstruction to exceed the vision clearance standards of Section 4.177.***
- ***G.*** ***Off-Street Parking and Loading: As provided in Section 4.155.***
- ***H.*** ***Signs: As provided in Section 4.156.***

RESPONSE

The overall site has been designed to provide a 60-foot perimeter setback along the north and east yards, which are double the requirements of the PDI Zone. The buildings are all located with at least double the standard 30 foot front yard setbacks. The glass storage area is internal to the site, given the additional property recently annexed, so it is well within the north setback area.

The proposed glass storage area will be located on the east side of the MRF building on existing pavement. This location and setback 530 feet from the street. This is an existing operation, so no additional parking is needed.

The main office building and associated parking will limit street views of this storage area. Therefore no additional screening is necessary.

Screening for the temporary drop box storage is addressed in the attached findings report.

(.04) Professional Design.

A. The applicant for all proposed Planned Developments shall certify that the professional services of the appropriate professionals have been utilized in the planning process for development.

B. Appropriate professionals shall include, but not be limited to the following to provide the elements of the planning process set out in Section 4.139:

1. An architect licensed by the State of Oregon;

2. A landscape architect registered by the State of Oregon;

3. An urban planner holding full membership in the American Institute of Certified Planners, or a professional planner with prior experience representing clients before the Development Review Board, Planning Commission, or City Council; or

4. A registered engineer or a land surveyor licensed by the State of Oregon.

C. One of the professional consultants chosen by the applicant from either 1, 2, or 3, above, shall be designated to be responsible for conferring with the planning staff with respect to the concept and details of the plan.

D. The selection of the professional coordinator of the design team will not limit the owner or the developer in consulting with the planning staff.

RESPONSE

The Planned Development Regulations require a Design Team. The Professional Design Team for this project is listed on pages 2 and 8 of this report. The team meets the qualifications of this section.

PDC Stage II, Final Development Plan

(.09) Final Approval (Stage II).

A. Unless an extension has been granted by the Development Review Board, within two (2) years after the approval or modified approval of a preliminary development plan (Stage I), the applicant shall file with the City Planning Department a final plan for the entire development or when submissions in stages has been authorized pursuant to Section 4.035 for the first unit of the development, a public hearing shall be held on each such application as provided in Section 4.013.

B. After such hearing, the Development Review Board shall determine whether the proposal conforms to the permit criteria set forth in this Code, and shall approve, conditionally approved, or disapprove the application.

C. The final plan shall conform in all major respects with the approved preliminary development plan, and shall include all information included in the preliminary plan plus the following:

i. The location of water, sewerage and drainage facilities;

ii. Preliminary building and landscaping plans and elevations, sufficient to indicate the general character of the development;

iii. The general type and location of signs;
iv. Topographic information as set forth in Section 4.035;
v. A map indicating the types and locations of all proposed uses; and
vi. A grading plan.

D. The final plan shall be sufficiently detailed to indicate fully the ultimate operation and appearance of the development or phase of development. However, Site Design Review is separate and more detailed review of proposed design features, subject to the standards of Section 4.400.

E. *Copies of legal documents required by the Development Review Board for dedication or reservation of public facilities, or* **for creation of non-profit homeowner's association, shall be submitted.**

RESPONSE

This application includes a request for both Stage I and Phase 4, Stage II approvals. Therefore the two-year time line for submitting a Stage II application is met. The Stage II plans substantially conform in all major respects with the Updated Stage I Master Plan. The Stage II Development Plans include:

1. The location of existing water, sewer, and storm drainage, and proposed sewer connection;
2. Preliminary site development, with associated storage area and plan elevation details, sufficient to indicate the character of the development;
3. Topographic information as set forth in Section 4.035;
4. A Site Plan indicating the types and locations of all existing and proposed uses (updated Master Plan);
5. Preliminary grading and gravel-paving plan – Temp Box Storage area;
6. Building elevations drawings; and
7. Updated Storm Drainage design – Temp Box Storage area.

Covered Glass Storage Area

This new Phase 4 Covered Storage Area is located to the east of the existing MRF building adjacent to the east wall, and just south of the truck wash bay. The proposed area to be covered will contain approximately 2,240 square foot.

The area to be covered is already concrete. A sanitary drain (trench) will be saw-cut into the concrete to manage liquids under the cover and direct flows to a sanitary sewer connection. Perimeter curbing (bunker blocks) will be installed to control drainage and physically separate the under-cover area from the outside pavement.

The roof drains will splash to the existing pavement and storm system drains, as under existing conditions.

This is industrial property not residential, all under single ownership, so there is no homeowner's association proposed or required.

Therefore, we believe we have satisfied all the Stage II requirements consistent with Code standards.

E. A planned Development permit may be granted by the Development Review Board only if it is found that the development conforms to all the following criteria, as well as the Planned Development Regulations in Section 4.140:

a. The location, design, size, and uses, both separately and as a whole, are consistent with the Comprehensive Plan, and with any other applicable plan, development map or Ordinance adopted by the City Council.

b. That the location, design, size, and uses are such that traffic generated by the development can be accommodated safely and without congestion in excess of level of service "D" defined in the highway capacity manual published by the national Highway Research Board on existing or immediately planned arterial or collector streets and will, in the case of commercial or industrial developments, avoid traversing local streets.

c. That the location, design, size and uses are such that the residents or establishments to be accommodated will be adequately served by existing or immediately planned facilities and services.

Conclusion – Planned Development Permit and PDI Zoning

Based on the above findings the proposed development is found to comply with the applicable provisions of Section 4.140(.09). The above findings demonstrate that the location, design, size, and uses, both separately and as a whole, are consistent with the Comprehensive Plan.

The findings within this report, together with the previous DKS Traffic Impact Study, demonstrate that the traffic generated by the current operations, including glass recycling, will not be affected by this proposed site improvement.

The glass recycling is a current operational function. Therefore site generated traffic is accommodated safely and without congestion in excess of level of service "D" on existing arterial and collector streets.

The above findings also demonstrate that the proposed development will be adequately served by all primary public facilities and services. No new City services are required by the proposed covered storage area.

Therefore, Stage II approval should be granted, as requested.

General Development Regulations

Section 4.154. On-site Pedestrian Access and Circulation.
(.01) On-site Pedestrian Access and Circulation
A. The purpose of this section is to implement the pedestrian access and connectivity policies of the Transportation System Plan. It is intended to provide for safe, reasonably direct, and convenient pedestrian access and circulation.
B. Standards. Development shall conform to all of the following standards:

RESPONSE

The site is located such that reasonable access is provided by existing public sidewalks, although it is quite a walk from the site east to 95th Avenue. Bicycle parking provisions were addressed with the prior approval for the maintenance shop and are unchanged by

this phase of improvements. No changes are proposed to site access or internal circulation.

There currently is no Smart Transit service to the property. The closest bus route is on 95th Avenue, which is approximately one half mile east of the site.

Bicycle parking consistent with code requirements has previously been provided. The glass storage is a current function, so there will be no change in requirements for additional bike racks. These minor site improvements are all related to existing operations, and will not alter the need for bike parking.

The Existing Site improvements provide pedestrian walkway from the parking areas to the main entry doors of the various buildings, consistent with prior approvals.

4.199 OUTDOOR LIGHTING
4.199.20. Applicability:

(.01) This Ordinance is applicable to:
- ***A. Installation of new exterior lighting systems in public facility, commercial industrial and multi-family housing projects with common areas.***
- ***B. Major additions or modifications (as defined in this Section) to existing exterior lighting systems in public facility, commercial industrial and multi-family housing projects with common areas.***

(.02) Exemption. The following luminaires and lighting systems are EXEMPT from these requirements:
- ***A. Interior lighting***
- ***B. Internally illuminated signs***
- ***C. Building Code required exit path lighting***

Table 8: Maximum Lighting Mounting Height In Feet			
Lighting Zone	***Lighting for private drives, driveways, parking, bus stops and other transit facilities***	***Lighting for walkways, bikeways, plazas and other pedestrian areas***	***All other lighting***
LZ 0	*20*	*8*	*4*
LZ 1	*25*	*12*	*4*
LZ 2	***40***	***18***	***8***

Lighting mounted onto buildings or other structures shall not exceed a mounting height greater than 4 feet higher than the tallest part of the building or structure at the place where the lighting is installed, nor higher than 33.33 percent of the horizontal distance of the light from the nearest property line, whichever is less.

RESPONSE

The City has adopted relatively new outdoor lighting standards, Section 4.199, at least new since the original site development. These new regulations set standards for the intensity of outdoor lighting, and there are also curfew provisions, aimed at lower artificial light levels at night (dark sky).

Section 4.199.30(.02) establishes lighting zones. The site is within LZ 2, as identified on the Lighting Zone Map. This zone applies to low-density suburban neighborhoods and suburban commercial districts, industrial parks and districts, and is the default condition for the majority of the City. This zone has a 10:00 PM curfew, which calls for lower lighting levels after 10:00 PM. However, this section also provides an exception for businesses that operate continuously (Exception 3).

Republic currently has some Portland Routes that run at night, with trucks returning to Wilsonville between 3:00 Am and 5:00 AM. The day shift drivers are typically arriving about this time to 6:00 AM. The truck maintenance operation runs with a swing shift that ends at 11:00 PM. So, there are operations occurring on a 24 hour, 7 day/week schedule. As noted, the truck refueling will also occur during the evening hours. For this reason the parking lot and the lights on the east side (MRF entrance) are on all night.

As reflected in Table 5, there is no new lighting being added for the covered storage area or temporary box storage. So there is no net change from existing lighting with this development.

No new lights are proposed for the temporary drop box storage area. The existing fueling station lighting is adequate for operational safety.

Table 5
Existing and Cumulative New Lighting
No Net Change with this Improvement

Type Lighting	Existing Luminaires
Building	23 shielded
Recessed Under eave	5 shielded
Pole	36 shielded
Total	64 **+18.5%**

CONCLUSION – Outdoor lighting

Based on the above findings and plans submitted this project complies with the outdoor lighting standards.

IV. SITE DESIGN REVIEW

1.400. Purposed.

(.01) Excessive uniformity, inappropriate or poor design of the exterior appearance of structures and signs and the lack of proper attention to site development and landscaping in the business, commercial, industrial and certain residential areas of the City hinders the harmonious development of the City, impairs the desirability of residence, investment or occupation in the City, limits the opportunity to attain the optimum use in value and improvements, adversely affects the stability and value of property, produces degeneration of

property in such areas and with attendant deterioration of conditions affecting the peace, health and welfare, and destroys a proper relationship between the taxable value of property and the cost of municipal services thereof.

RESPONSE

Covered Storage Area

The proposed new location is adjacent to the east side of the MRF, next to the truck wash bay. This area is currently used to store recyclable metal, and is on a concrete pad, so there is not new net increase in impervious cover.

The new covered storage area will be approximately 2,240 square feet. This new location improves material flow and also affords easy access to the sanitary sewer which serves the truck wash bay.

The proposed canopy cover will be steel framed with metal roof matching the existing building, similar to the truck wash bay. The canopy will have a shed roof, sloping to the east, and extending 10 feet past the concrete pad to cover trucks during off-loading (parked parallel to the canopy). The high point of the canopy adjacent to the building will be 30 feet in height, tapering to 28 feet at the east edge. There will be a 2 foot siding skirt around the top below the eves.

Temporary Box Storage

The area proposed for the temporary storage is master planned for future expansion of the paved truck fueling stations. Therefore the interim gravel for the box storage is consistent with the Master Plan, as an area ultimately to be paved.

Appropriate fencing and landscape screening will be installed to provide visual screening from the road.

4.421. Criteria and Application of Design Standards.

(.01) The following standards shall be utilized by the Board in reviewing the plans, drawings, sketches and other documents required for Site Design Review. These standards are intended to provide a frame of reference for the applicant in the development of site and building plans as well as a method of review for the Board. These standards shall not be regarded as inflexible requirements. They are not intended to discourage creativity, invention and innovation. The specifications of one or more particular architectural style is not included in these standards. (Even in the Boones Ferry Overlay Zone, a range of architectural styles will be encouraged.)

A. Preservation of Landscape. The landscape shall be preserved in it natural state, insofar as practicable, by minimizing tree and soil removal, and any grade changes shall be in keeping with the general appearance of neighboring developed areas.

B. Relation of Proposed Buildings to Environment. Proposed structures shall be located and designed to assure harmony with the natural environment, including protection of steep slopes, vegetation and other naturally sensitive areas for wildlife habitat and shall provide buffering from less intensive uses in accordance with Sections 4.139 and 4.139.5. The achievement of such

relationship may include enclosure of space in conjunction with other existing buildings or other proposed buildings and the creation of focal points with respect to avenues of approach, street access or relationships to natural features such as vegetation or topography.

C. Drives, Parking, and Circulation. With respect to vehicular and pedestrian circulation, including walkways, interior drives and parking, special attention shall be given to location and number of access points, general interior circulation, separation of pedestrian and vehicular traffic, and arrangement of parking areas that are safe and convenient and, insofar as practicable, do not detract from the design of proposed buildings and structures and the neighboring properties.

D. Surface Water Drainage. Special attention shall be given to proper site surface drainage so that removal of surface waters will not adversely affect neighboring properties of (et sic) the public storm drainage system.

E. Utility Service. Any utility installations above ground shall be located so as to have an harmonious relation to neighboring properties and site. The proposed method of sanitary and storm sewage disposal from all buildings shall be indicated.

F. Advertising Features. In addition to the requirements of the City's sign regulations, the following criteria should be included: the size, location, design, color, texture, lighting and materials of all exterior signs and outdoor advertising structures or features shall not detract from the design of proposed buildings and structures and the surrounding properties.

G. Special Features. Exposed storage area, exposed mechanical installations, surface areas, truck loading areas, utility buildings and structures and similar accessory areas and structures shall be subject to such setbacks, screen plantings or other screening methods as shall be required to prevent their being incongruous with the existing or contemplated environment and its surrounding properties. Standards for screening and buffering are contained in Section 4.176.

(.02) The standards of review outlined in Sections (a) through (g) shall also apply to all accessory buildings, structures, exterior signs and other site features, however related to the major buildings or structures.

(.03) The Board shall also be guided by the purposes of Section 4.400 and such objectives shall serve as additional criteria and standards.

RESPONSE

Preservation of Landscape. This Republic site is surrounded on all four sides by other industrially designated properties including developed and undeveloped land. The undeveloped or under-developed properties are generally to the north, which includes Republic's Tax Lots 600, which was recently annexed to the City; and to the west, where there are currently a few rural residential uses.

Approximately 98% of the subject property (Lot 1400), which fronts on Ridder Road has been development. The Phase 4 covered glass storage improvement will be within the existing paved area on the east side of the MRF. Therefore no existing landscaping is affected by this site improvement, and the development remains in compliance with landscaping standards.

The temporary box storage will be adjacent to Garden Acres Road, with appropriate screening. This area is master planned for future paving for truck fueling. The temporary storage will be gravel, but no trees will be removed to accommodate this temporary use.

Relation of Proposed Buildings to Environment. Within the development site, there are no naturally sensitive areas or wildlife habitats that require protection or buffering (SROZ). The only more sensitive uses are some rural residential properties along Garden Acres Road. These residential properties are well screened from the storage area by distance of over 700 feet, plus existing trees and other perimeter landscaping.

The existing and proposed structures have been located and designed to assure reasonable harmony with the natural environment, including protection of vegetation and to provide appropriate buffering from less intensive uses to the north in accordance with Sections 4.139 and 4.139.5.

Site buffering has been achieved through retention and planting of trees along the perimeter (north) and by minimizing building openings, to the degree practicable on the north side. Perimeter buffer landscaping has also been provided along the two street frontages, consistent with high screen standards. The slatted fencing will be moved to the perimeter of the temporary storage area (long-term master plan) and the landscaping buffer will be enhanced, to be consistent with the prior approval.

The glass storage is an existing operational activity that has occurred for years. The only change proposed is to provide a cover for the storage area for storm water protection.

Drives, Parking, and Circulation. Access for the two proposed storage areas will be via existing paved circulation, and will not significantly alter existing on or off-site traffic patterns or volumes. Although it is noted that the relocation of the drop box on-site will actually reduce current trips across the street (Ridder Rd) to Interstate Distributors.

Appropriate attention has previously been given to location and number of access points, general interior circulation, and the separation of pedestrian and vehicular traffic, to the degree practicable given the site operations. Existing employee parking has been located in front of and to the east side of the administrative offices, and interim parking is proved west of the maintenance office. Parking for the temporary Operations Offices is provided south and north of the shop. Appropriate ADA access is also provided consistent with code requirements.

On the east side, the proposed improvement simply provides a cover over the relocated glass storage area. There is no new parking associated with this improvement.

To the degree practicable, the existing parking configuration provides safe, convenient and direct access and circulation throughout the site. It does not detract from the design of the existing or proposed structure nor neighboring properties.

Surface Water Drainage. Special attention has been given to proper site surface drainage so that removal of surface waters does not adversely affect neighboring properties or the public storm drainage system. Necessary water quality treatment and quantity control has been designed into the system consistent with City standards.

The new covered glass storage area improvements will further enhance storm water quality by separating storm water from potential contaminants remaining in stored glass. The area to be covered is already pave, so there will be no net change in impervious cover.

Storm drainage for the temporary drop box storage will be directed to the existing edge of pavement for the fueling stations. From there storm water will flow to existing catch basins and then to the existing water quality and detention facilities. These facilities were previously sized to accommodate the master planned improvements of Tax Lot 1400, so no additional capacity is required.

Utility Service. All utility serving the site have been undergrounded. The proposed method of sanitary and storm sewage disposal from all buildings has been indicated.

The roof drains for the glass storage area cover will be directed to the existing storm drainage system on-site. Water and other liquids collected under the cover will be directed to existing on-site sanitary sewer.

The temporary drop box storage will provide appropriate storm drainage, utilizing the existing on-site system, but no other city services will be needed.

Advertising Features. There is an existing entry sign at the east entrance. The applicant is not proposing any changes to existing signage at this time. Therefore this design criterion is not applicable to this application.

Special Features. Appropriate screening and buffering of exposed storage area, exposed mechanical installations, surface areas, truck loading areas, and utility buildings and structures has been provided as approved for the existing site improvements.

Additional screen plantings have been provided along the site frontage, as previously approved. The applicant believes this existing screening remains adequate for the Phase 4 improvements. See also response to screening and buffering contained in Section 4.176.

Existing access points from public streets will be retained and unaltered. All access for the storage areas will remain from Ridder Road at the two existing driveways, and via existing on-site paved circulation.

V. TREE PRESERVATION AND REMOVAL

Section 4.600. Purpose and Declaration
(.01) Rapid growth, the spread of development, need for water and increasing demands upon natural resources have the effect of encroaching upon, despoiling, or eliminating many of the trees, other forms of vegetation, and natural resources and processes associated therewith which, if preserved and maintained in an undisturbed and natural condition, constitute important physical, aesthetic, recreational and economic assets to existing and future residents of the City of Wilsonville.

RESPONSE

The Republic property is not within the Willamette River Greenway. There are no significant protected resources (SROZ) and no sensitive wildlife habitat on or adjacent to the development site.

The location for the proposed covered storage is an area adjacent to the northeast side of the MRF. This location area consists of existing pavement, and will not result in removal of any trees or existing landscaping.

There will also not be any trees removed for the Temp Box Storage area.

VI. FINAL CONCLUSION

Based on the original findings (93DR03 & 91PC33) and the supplement findings presented herein, the applicant has demonstrated substantial compliance with the original Conditions of Approval, and the applicable PDI and Design Review Code Criteria.

Therefore Republic Services respectfully requests approval for:

1. Covered glass storage area; and
2. 3-Year Temporary Use Permit for drop box storage.

Drainage Report

PIONEER DESIGN GROUP, INC.

CIVIL LAND USE PLANNING SURVEY
P 503.643.8286 F 844.715.4743 www.pd-grp.com
9020 SW Washington Square Rd Suite 170
Portland, Oregon 97223

June 26, 2015

City of Wilsonville

RE: Republic Services Phase 2, CNG Equipment Compound, Stage II, Storm Analysis
SFA Project No.: 999-158a

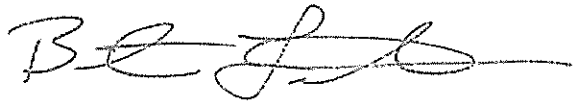
To Whom It May Concern:

I am writing concerning the storm water management proposed for the Phase 2, Expansion, Stage II Final Development Plans, for a CNG fueling Equipment Compound, at 10295 SW Ridder Rd.

The addition of the CNG Equipment Compound to the existing facilities on the property will create new impervious surfaces. There is an existing water quality swale and detention pond on the property that was constructed to service the impervious surfaces created during the expansion of the parking lot and new maintenance building in Phase 1. We are proposing to use the same swale and pond. The existing water quality swale is oversized for current use and will be adequate for all of the additional flows created by the new impervious surfaces in the CNG Equipment Compound. The detention pond as designed was to have a total storage capacity of 9,804 cubic feet. The pond as it was built has a total storage capacity of 10,885 cubic feet. Attached calculations show that the pond as it was built is adequate to contain the total existing flows as well as the new flows generated by the proposed CNG Equipment Compound. No changes to the existing pond are necessary.

Through the use of the existing water quality swale and detention pond we have managed the storm water collected on the site to meet the City of Wilsonville's requirements.

Sincerely,
Pioneer Design Group, Inc.



Brent E. Fitch, PE
Principal

Hydrograph Plot Phase 1- As Built

Hydraflow Hydrographs by Intelisolve

Friday, Jun 26 2015, 8:34 AM

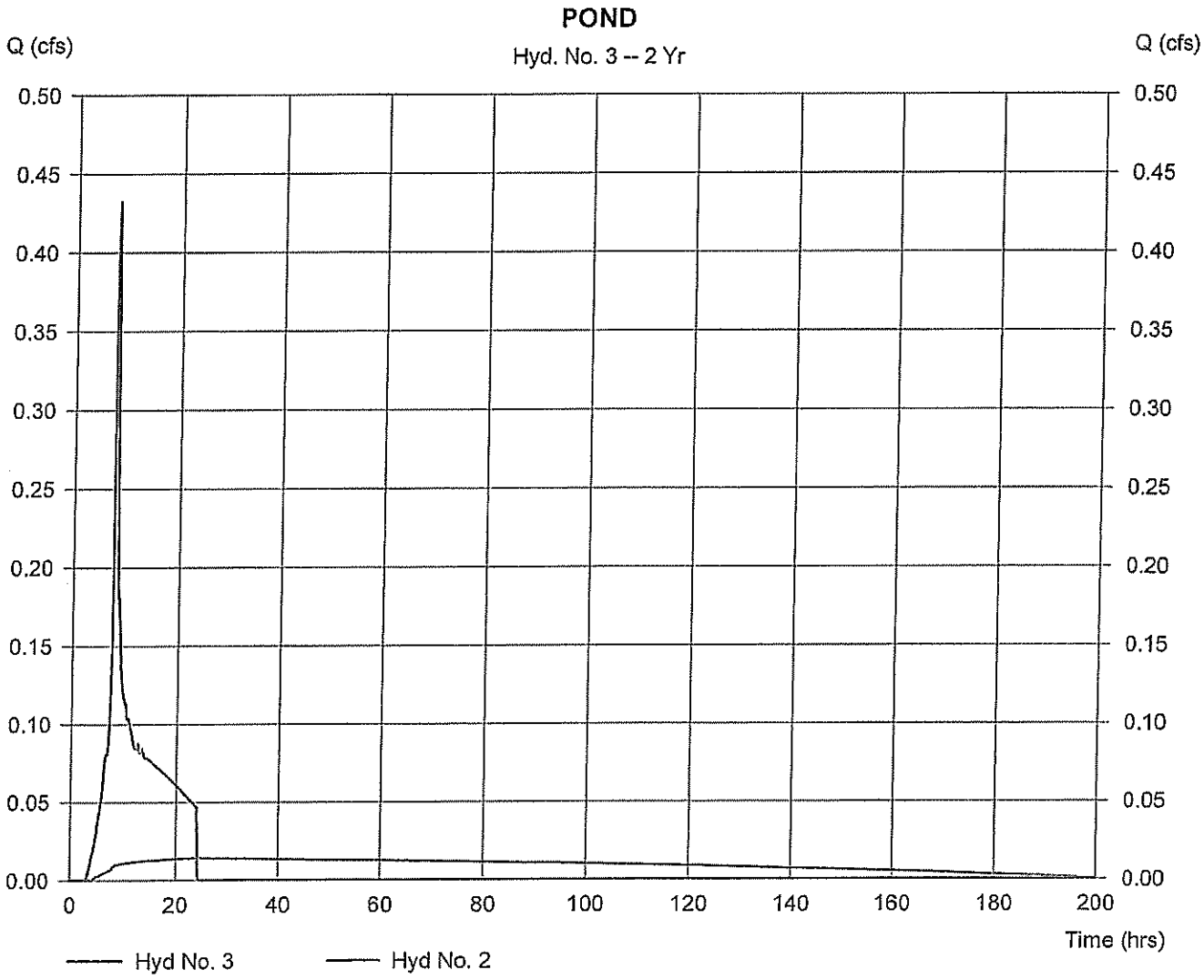
Hyd. No. 3

POND

Hydrograph type	= Reservoir	Peak discharge	= 0.01 cfs
Storm frequency	= 2 yrs	Time interval	= 6 min
Inflow hyd. No.	= 2	Max. Elevation	= 103.65 ft
Reservoir name	= POND	Max. Storage	= 5,469 cuft

Storage Indication method used.

Hydrograph Volume = 6,213 cuft



Pond Report

Pond No. 1 - POND

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	100.00	739	0	0
0.50	100.50	909	412	412
1.50	101.50	1,300	1,105	1,517
2.50	102.50	1,761	1,531	3,047
3.50	103.50	2,290	2,026	5,073
4.50	104.50	2,889	2,590	7,662
5.50	105.50	3,556	3,223	10,885

Culvert / Orifice Structures

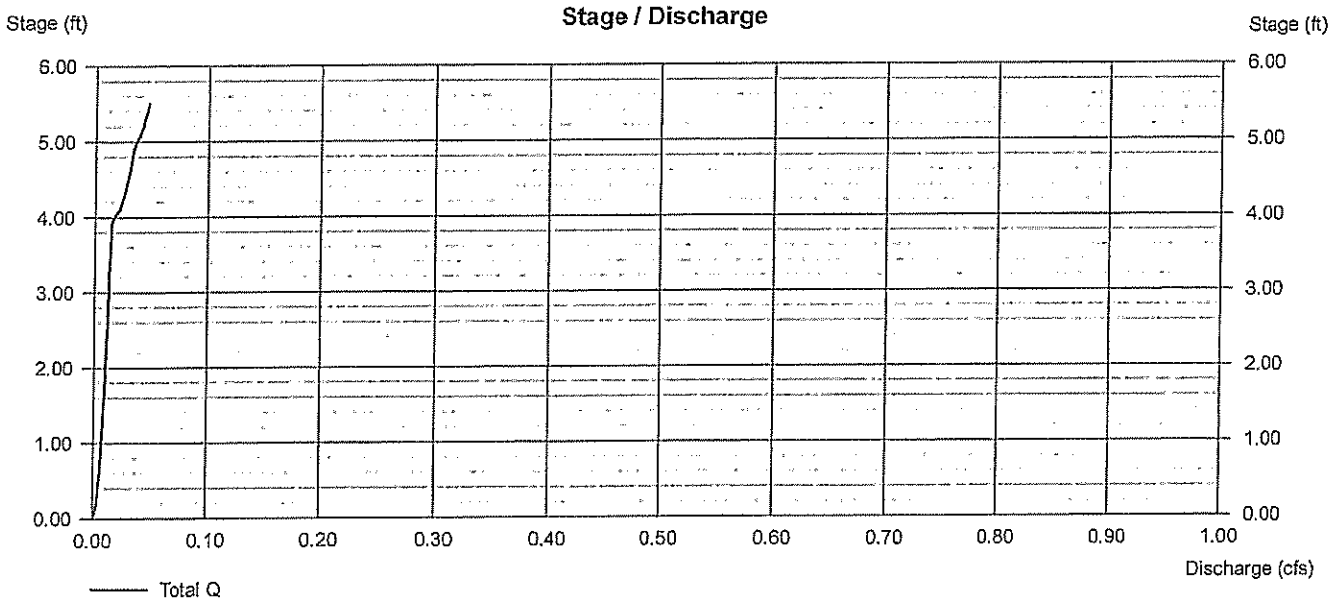
	[A]	[B]	[C]	[D]
Rise (in)	= 21.00	0.53	0.84	0.61
Span (in)	= 21.00	0.53	0.84	0.61
No. Barrels	= 1	1	1	1
Invert El. (ft)	= 97.75	100.01	103.95	104.97
Length (ft)	= 25.00	0.00	0.00	0.00
Slope (%)	= 0.50	0.00	0.00	0.00
N-Value	= .013	.013	.013	.013
Orif. Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	Yes

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.14	0.00	0.00	0.00
Crest El. (ft)	= 105.50	0.00	0.00	0.00
Weir Coeff.	= 3.33	0.00	0.00	0.00
Weir Type	= Riser	---	---	---
Multi-Stage	= Yes	No	No	No

Exfiltration = 0.000 in/hr (Wet area) Tailwater Elev. = 0.00 ft

Note: Culvert/Orifice outflows have been analyzed under inlet and outlet control.



Hydrograph Plot

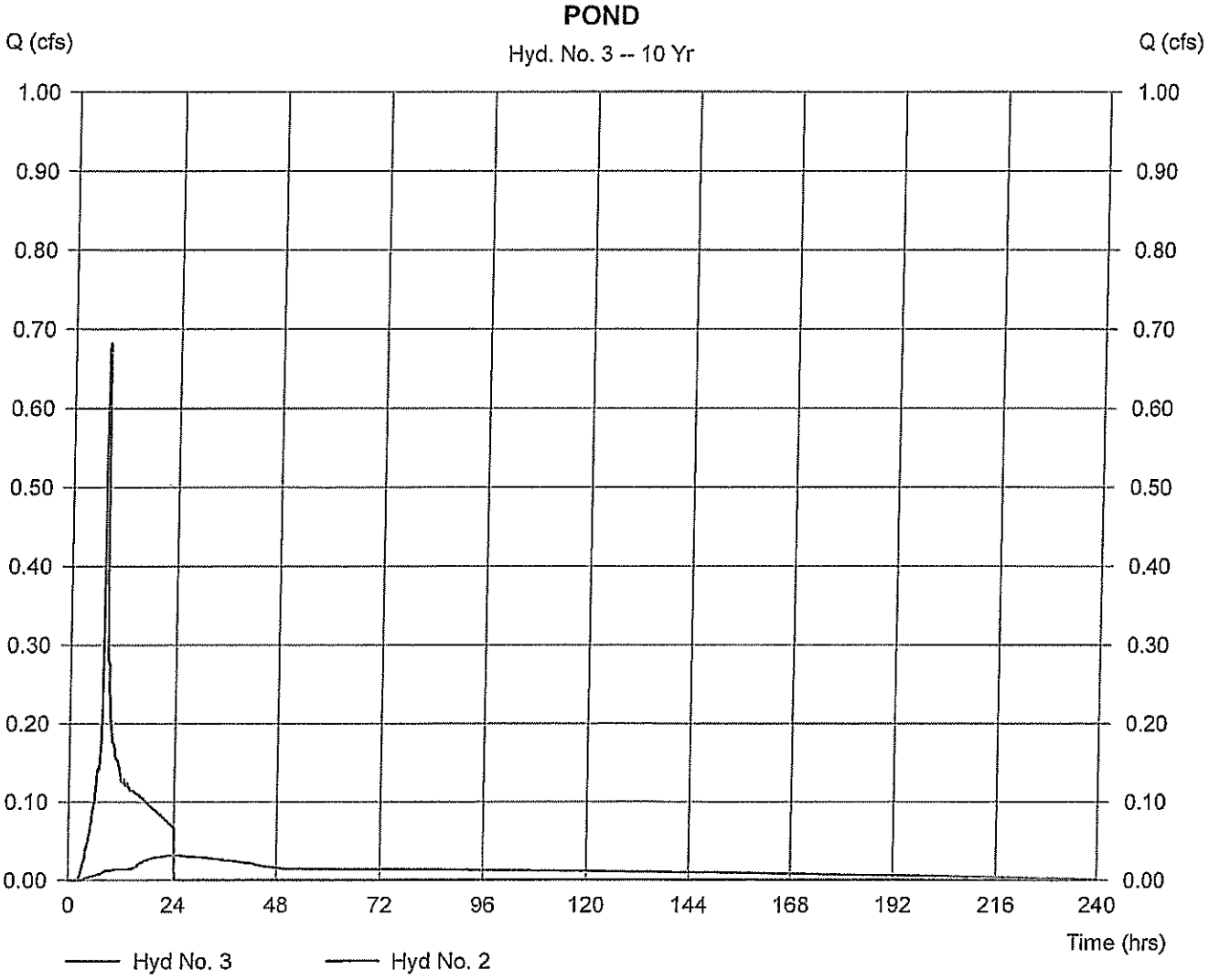
Hydraflow Hydrographs by Intelisolve — Friday, Jun 26 2015, 8:34 AM

Hyd. No. 3

POND

Hydrograph type	= Reservoir	Peak discharge	= 0.03 cfs
Storm frequency	= 10 yrs	Time interval	= 6 min
Inflow hyd. No.	= 2	Max. Elevation	= 104.72 ft
Reservoir name	= POND	Max. Storage	= 8,355 cuft

Storage Indication method used. — Hydrograph Volume = 9,645 cuft



Pond Report

Pond No. 1 - POND

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	100.00	739	0	0
0.50	100.50	909	412	412
1.50	101.50	1,300	1,105	1,517
2.50	102.50	1,761	1,531	3,047
3.50	103.50	2,290	2,026	5,073
4.50	104.50	2,889	2,590	7,662
5.50	105.50	3,556	3,223	10,885

Culvert / Orifice Structures

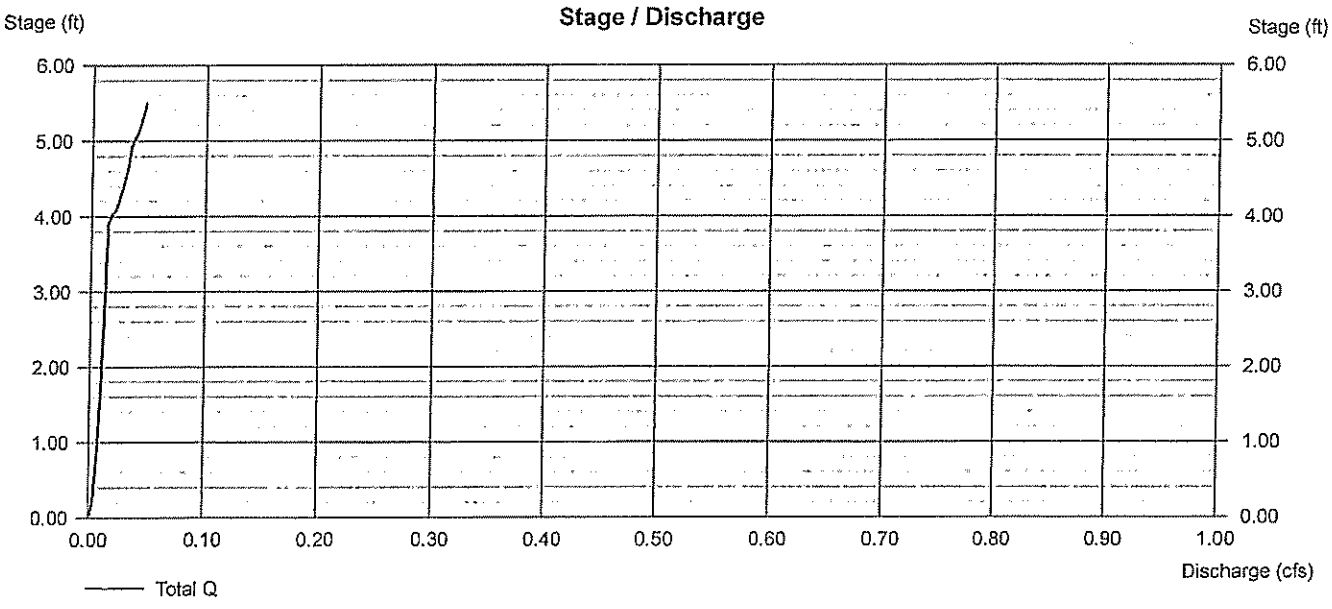
	[A]	[B]	[C]	[D]
Rise (in)	= 21.00	0.53	0.84	0.61
Span (in)	= 21.00	0.53	0.84	0.61
No. Barrels	= 1	1	1	1
Invert El. (ft)	= 97.75	100.01	103.95	104.97
Length (ft)	= 25.00	0.00	0.00	0.00
Slope (%)	= 0.50	0.00	0.00	0.00
N-Value	= .013	.013	.013	.013
Orif. Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	Yes

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.14	0.00	0.00	0.00
Crest El. (ft)	= 105.50	0.00	0.00	0.00
Weir Coeff.	= 3.33	0.00	0.00	0.00
Weir Type	= Riser	---	---	---
Multi-Stage	= Yes	No	No	No

Exfiltration = 0.000 in/hr (Wet area) Tailwater Elev. = 0.00 ft

Note: Culvert/Orifice outflows have been analyzed under inlet and outlet control.



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Friday, Jun 26 2015, 8:34 AM

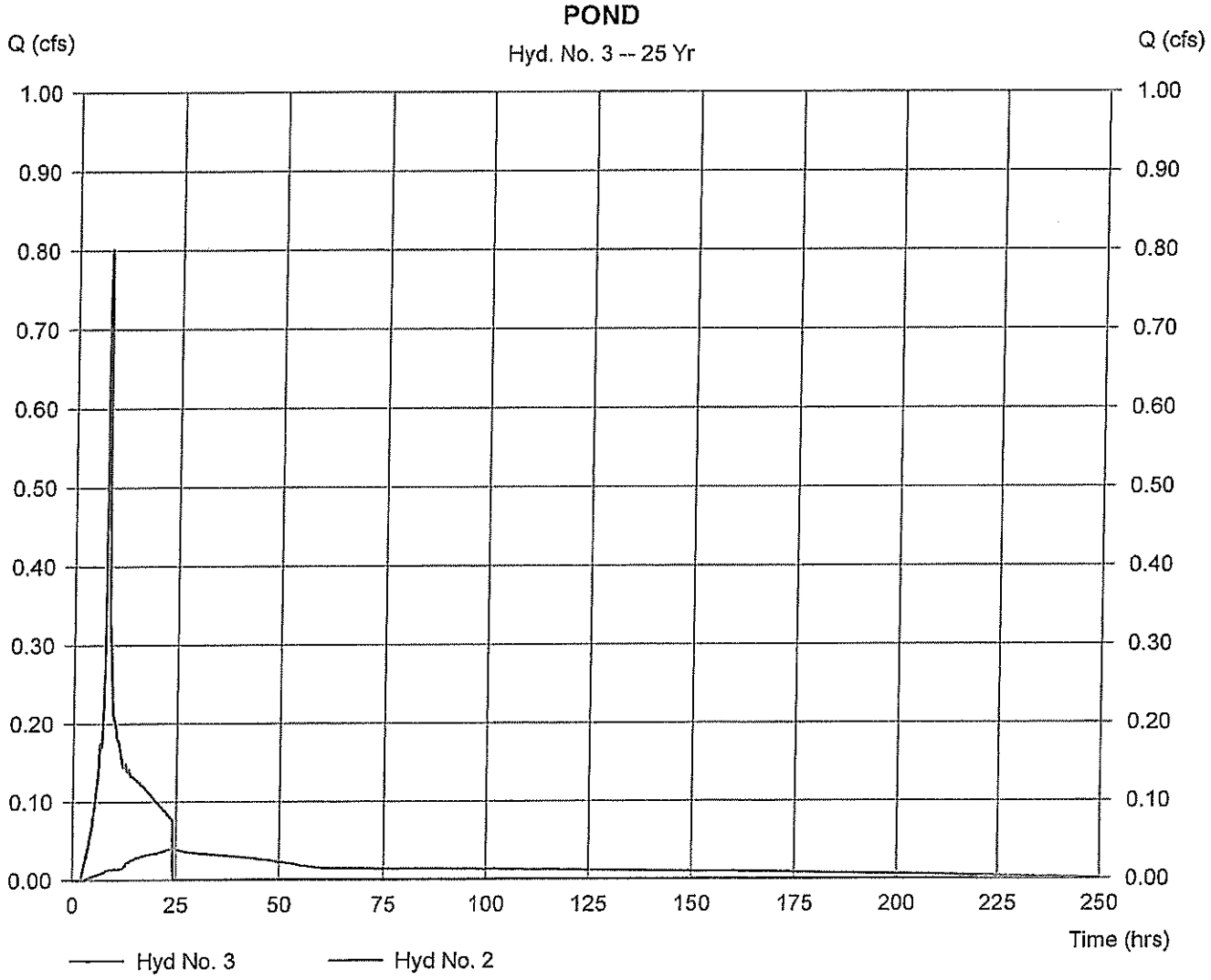
Hyd. No. 3

POND

Hydrograph type	= Reservoir	Peak discharge	= 0.04 cfs
Storm frequency	= 25 yrs	Time interval	= 6 min
Inflow hyd. No.	= 2	Max. Elevation	= 105.13 ft
Reservoir name	= POND	Max. Storage	= 9,682 cuft

Storage Indication method used.

Hydrograph Volume = 11,307 cuft



Pond Report

Pond No. 1 - POND

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	100.00	739	0	0
0.50	100.50	909	412	412
1.50	101.50	1,300	1,105	1,517
2.50	102.50	1,761	1,531	3,047
3.50	103.50	2,290	2,026	5,073
4.50	104.50	2,889	2,590	7,662
5.50	105.50	3,556	3,223	10,885

Culvert / Orifice Structures

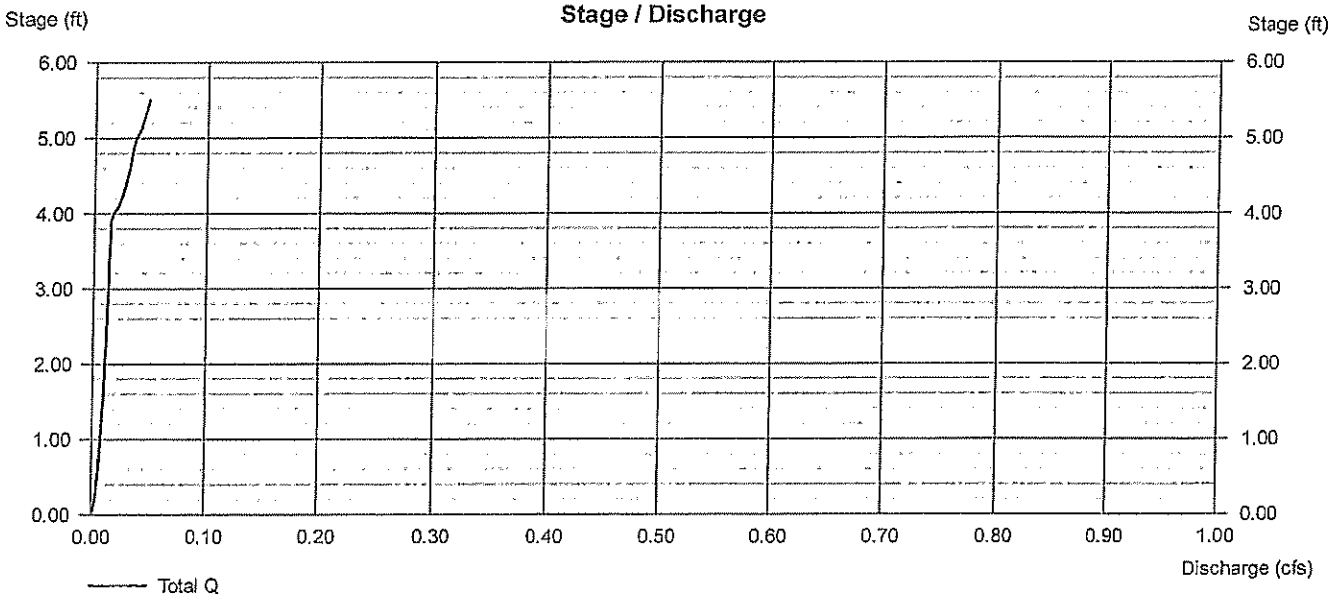
	[A]	[B]	[C]	[D]
Rise (in)	= 21.00	0.53	0.84	0.61
Span (in)	= 21.00	0.53	0.84	0.61
No. Barrels	= 1	1	1	1
Invert El. (ft)	= 97.75	100.01	103.95	104.97
Length (ft)	= 25.00	0.00	0.00	0.00
Slope (%)	= 0.50	0.00	0.00	0.00
N-Value	= .013	.013	.013	.013
Orif. Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	Yes

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.14	0.00	0.00	0.00
Crest El. (ft)	= 105.50	0.00	0.00	0.00
Weir Coeff.	= 3.33	0.00	0.00	0.00
Weir Type	= Riser	---	---	---
Multi-Stage	= Yes	No	No	No

Exfiltration = 0.000 in/hr (Wet area) Tailwater Elev. = 0.00 ft

Note: Culvert/Orifice outflows have been analyzed under inlet and outlet control.



Hydrograph Plot

Phase 1 - As-Built - Add CNG

Hydraflow Hydrographs by Intelisolve

Friday, Jun 26 2015, 8:45 AM

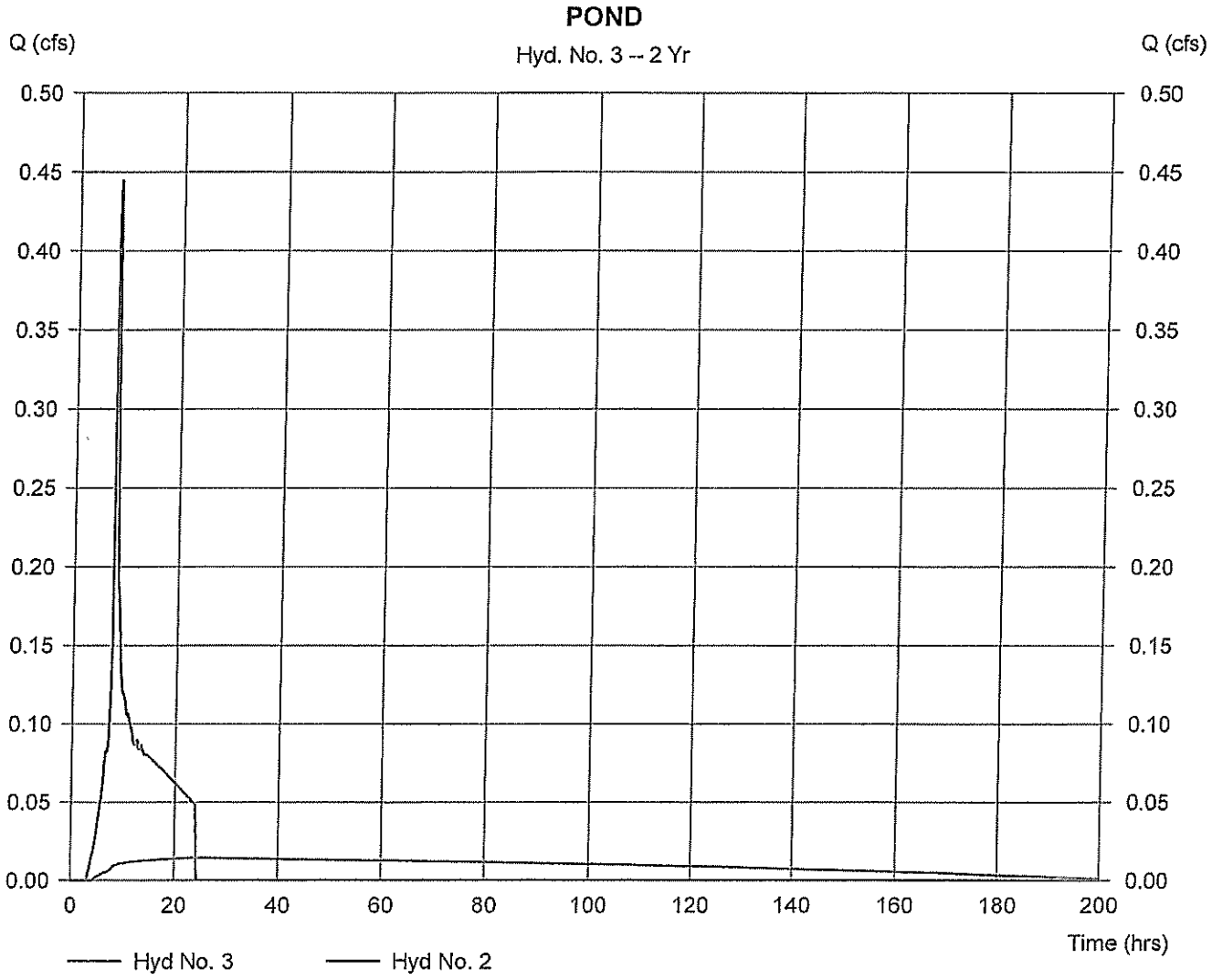
Hyd. No. 3

POND

Hydrograph type	= Reservoir	Peak discharge	= 0.01 cfs
Storm frequency	= 2 yrs	Time interval	= 6 min
Inflow hyd. No.	= 2	Max. Elevation	= 103.72 ft
Reservoir name	= POND	Max. Storage	= 5,637 cuft

Storage Indication method used.

Hydrograph Volume = 6,389 cuft



Hydrograph Plot

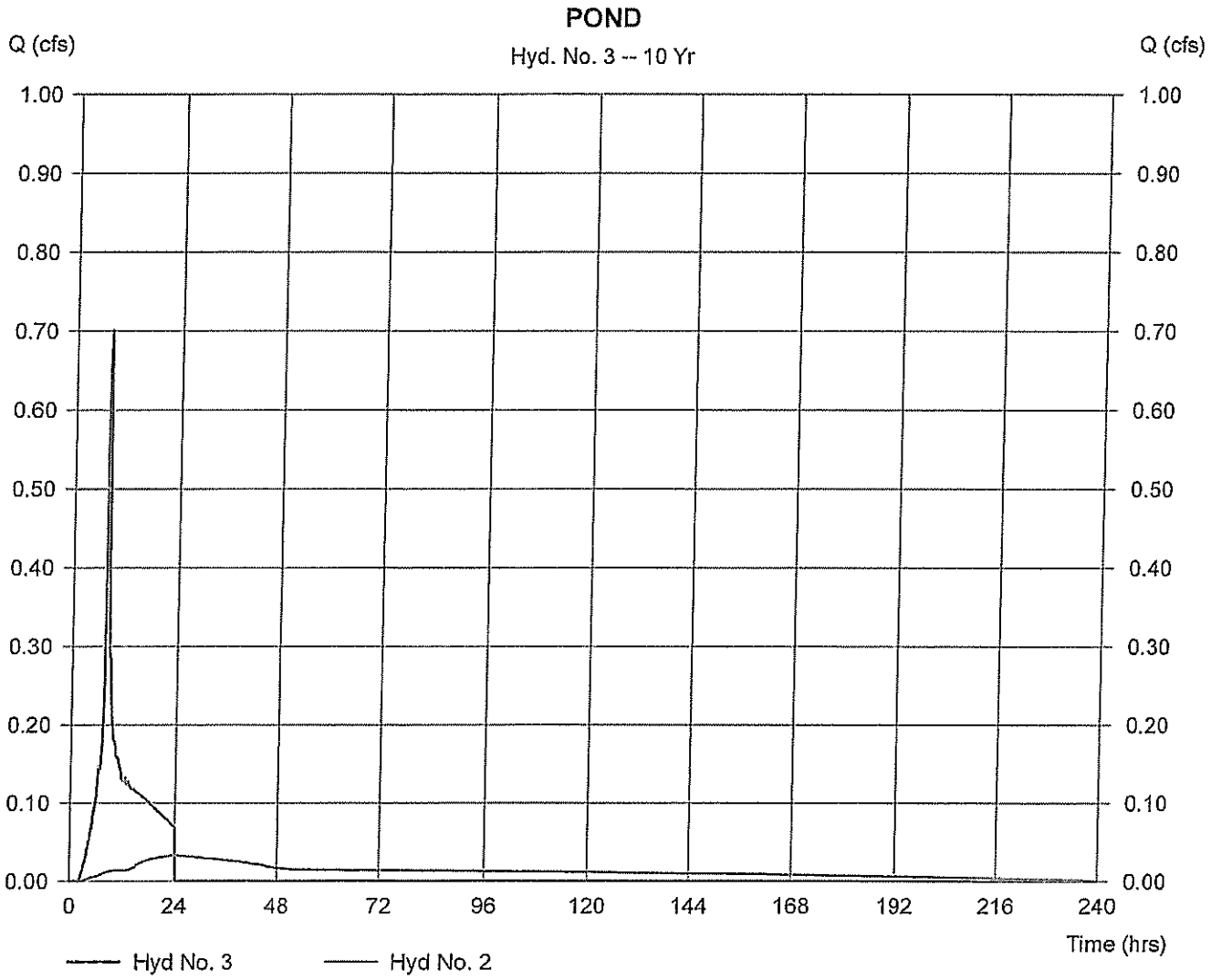
Hydraflow Hydrographs by Intelisolve | Friday, Jun 26 2015, 8:45 AM

Hyd. No. 3

POND

Hydrograph type	= Reservoir	Peak discharge	= 0.03 cfs
Storm frequency	= 10 yrs	Time interval	= 6 min
Inflow hyd. No.	= 2	Max. Elevation	= 104.78 ft
Reservoir name	= POND	Max. Storage	= 8,577 cuft

Storage Indication method used. | Hydrograph Volume = 9,917 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Friday, Jun 26 2015, 8:45 AM

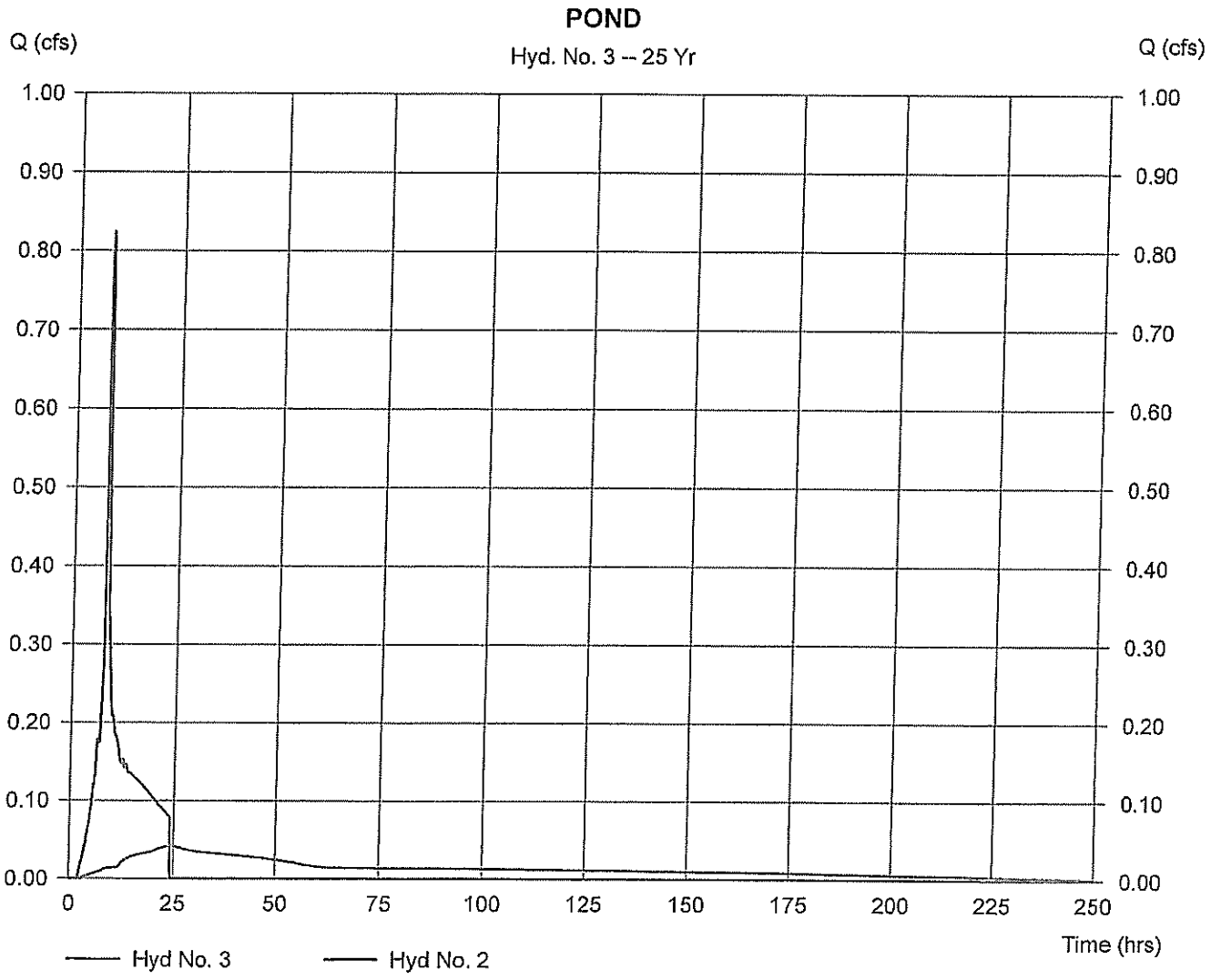
Hyd. No. 3

POND

Hydrograph type	= Reservoir	Peak discharge	= 0.04 cfs
Storm frequency	= 25 yrs	Time interval	= 6 min
Inflow hyd. No.	= 2	Max. Elevation	= 105.20 ft
Reservoir name	= POND	Max. Storage	= 9,929 cuft

Storage Indication method used.

Hydrograph Volume = 11,625 cuft



SFA Design Group, LLC
STRUCTURAL | CIVIL | LAND USE PLANNING | SURVEYING
9020 SW Washington Square Dr. • Suite 505 • Portland, Oregon 97223
P: 503-641-8311 • F: 503-643-7905 • www.sfadg.com

March 12, 2014

City of Wilsonville

RE: Republic Services Phases 1 and Phase 2, Expansion, Stage II, Storm Analysis
SFA Project No.: 999-158

To Whom It May Concern:

I am writing concerning the storm water management proposed for the Phases 1 & 2, Expansion, Stage II Final Development Plans, for a Truck Maintenance Building, including expanded parking and paved storage area, at 10295 SW Ridder Rd.

The expansion to the existing facilities on the property will create new impervious surfaces as well as disturb existing impervious surfaces. We are proposing to construct a water quality swale to treat the storm water collected off of the proposed impervious surface as well as treat existing impervious surfaces that will drain to the swale. We will also be managing the peak flows from the impervious surfaces for the Phase 1 Expansion within a detention pond located along the southern boundary of the site. For Phase 2 we have planned for expanding the pond to the north and west to manage all of the collected storm water on the site to match developed flows to predeveloped flows.

The storm water will discharge from the proposed detention pond through a flow control structure and into the public storm water system located within SW Ridder Road. Once in the public system the storm water will ultimately be released into the Coffee Lake Wetlands. Please refer to the attached exhibits and calculations.

Through the use of the water quality swale and detention pond we have managed the storm water collected on the site to meet the City of Wilsonville's requirements.

Sincerely,
SFA Design Group, LLC

Brent E. Fitch, PE
Principal


122° 47' 7" W
122° 46' 47" W
45° 20' 2" N
45° 19' 53" N
516840
516880
516920
516960
517000
517040
517080
517120
517160
517200
517240
5020060
5020020
5019980
5019940
5019900
5019860
5019820
Sw Garden Acres Rd
Sw Ridder Rd
Peters Rd
62B
62D
RB
PkC
Map Scale: 1:1,960 if printed on A landscape (11" x 8.5") sheet.
N
0 25 50 100 150 Meters
0 50 100 200 300 Feet
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Washington County, Oregon
Survey Area Data: Version 11, Dec 4, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 8, 2010—Sep 4, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Soil Group	Washington County, Oregon (OR067)			
	Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
C	2	Amity silt loam	0.2	1.6%
B	62B	Salem silt loam, 0 to 7 percent slopes	7.3	49.7%
B	63B	Salem gravelly silt loam, 0 to 7 percent slopes	7.1	48.8%
	Totals for Area of Interest		14.6	100.0%

PRIOR TO DEVELOPMENT SITE WAS PASTURE/GRASSLAND IN GOOD CONDITION $CN_{B\ SOILS} = 61$ $CN_{C\ SOILS} = 74$

IN THE DEVELOPED CONDITION $CN_B = 61$ $CN_C = 74$

$CN_{IMP} = 98$

PRE DEV COMPOSITE $CN_{PER} = \frac{(.2 \times 74) + (14.4 \times 61)}{14.6} = \pm 61.2$

DEV COMP. $CN_{PER} = \frac{(74 \times .2) + (14.4 \times 61)}{14.6} = \pm 61.2$

RUNOFF CURVE NUMBERS (TR55)

Table 2-2a: Runoff curve numbers for urban areas [1]

Cover description		CN for hydrologic soil group			
Cover type and hydrologic condition	Average percent impervious area[2]	A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) [3]:					
Poor condition (grass cover <50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover >75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) [4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation) [5]	77	86	91	94	
Idle lands (CNs are determined using cover types similar to those in table 2-2c)					

1: Average runoff condition, and $I_a = 0.2S$.

2: The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas hava a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

3: CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

4: Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

5: Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Table 2-2c: Runoff curve numbers for other agricultural lands [1]

Cover description		Curve numbers for hydrologic soil group			
Cover type	Hydrologic condition	A	B	C	D
Pasture, grassland, or range -- continuous forage for grazing					
<50% ground cover or heavily grazed with no mulch.	Poor	68	79	86	89
50% to 75% ground cover and not heavily grazed.	Fair	49	69	79	84
>75% ground cover and lightly or only occasionally grazed.	Good	39	61	74	80
Meadow -- continuous grass, protected from grazing and generally mowed for hay	--	30	58	71	78
Brush – weed-grass mixture with brush as the major element					
<50% ground cover	Poor	48	67	77	83
50% to 75% ground cover	Fair	35	56	70	77
>75% ground cover	Good	30 [2]	48	65	73
Woods – grass combination (orchard or tree farm) [3]	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods					
Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.	Poor	45	66	77	83
Woods are grazed but not burned, and some forest litter covers the soil.	Fair	36	60	73	79
Woods are protected from grazing, and litter and brush adequately cover the soil.	Good	30 [2]	55	70	77
Farmsteads -- buildings, lanes, driveways, and surrounding lots	--	59	74	82	86

1: Average runoff condition, and $I_a = 0.2S$.

2: Actual curve number is less than 30; use CN = 30 for runoff computations.

3: CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.

MANNING'S "n" VALUES

SHEET FLOW EQUATION MANNING'S VALUES	n_s
Smooth Surfaces (concrete, asphault, gravel, or bare hand packed soil)	0.011
Fallow Fields or loose soil surface (no residue)	0.05
Cultivated soil with residue cover (≤ 20%)	0.06
Cultivated soil with residue cover (> 20%)	0.17
Short prairie grass and lawns	0.15
Dense grasses	0.24
Bermuda grasses	0.41
Range (natural)	0.13
Woods or forrest with light underbrush	0.40
Woods or forrest with dense underbrush	0.80

SHALLOW CONCENTRATED FLOW (after initial 300 ft of sheet flow, R = 0.1)	k_s
Forrest with heavy ground litter and meadows (n = 0.010)	3
Brushy ground with some trees (n = 0.060)	5
Fallow or minimum tillage cultivation (n = 0.040)	8
High grass (n = 0.035)	9
Short grass, pasture and lawns (n = 0.030)	11
Nearly bare ground (n = 0.25)	13
Paved and gravel areas (n = 0.012)	27

CHANNEL FLOW (Intermittent) (At the beginning of all visible channels, R =	k_c
Forested swale with heavy ground cover (n = 0.10)	5
Forested drainage course/ravine with defined channel bed (n = 0.050)	10
Rock-lined waterway (n = 0.035)	15
Grassed waterway (n = 0.030)	17
Earth-lined waterway (n = 0.025)	20
CMP pipe (n = 0.024)	21
Concrete pipe (n = 0.012)	42
Other waterways and pipe 0.508/n	

CHANNEL FLOW (continuous stream, R = 0.4)	k_c
Meandering stream (n = 0.040)	20
Rock-lined stream (n = 0.035)	23
Grass-lined stream (n = 0.030)	27
Other streams, man-made channels and pipe (n = 0.807/n)	

PREDEVELOPED TIME OF CONCENTRATION

NUMBER:	999-158
PROJECT:	REPUBLIC SERVICES
FILE:	999-158 HYDRO_PH_II.XLS

			Accum. Tc
LAG ONE: SHEET FLOW (FIRST 300 FEET)			
Tt = Travel time			
Manning's "n " =	0.15	short prairie grass	
Flow Length, L =	300 ft	(300 ft. max.)	
P = 2-year, 24hr storm =	2.5 in		
Slope, S_0 =	0.010 ft/ft		
$T_T = \frac{(0.42)(n * L)^{0.8}}{(P)^{0.5}(S_0)^{0.4}}$	35.22 min.		35.22 min.
LAG TWO: SHALLOW CONCENTRATED FLOW (NEXT 623 FEET)			
Tc Velocity factor, k=	11		
Slope, S_0 =	0.023 ft/ft		
$V = 1.6135 * k\sqrt{S_0}$	26.62 ft/s		
Flow Length, L =	623 ft		
$T = \frac{L}{(60)(V)}$	0.39 min.		35.61 min.

TOTAL PREDEVELOPED TIME OF CONCENTRATION = 35.61 min.

DEVELOPED TIME OF CONCENTRATION

JOB NUMBER:	999-158
PROJECT:	REPUBLIC SERVICES
FILE:	999-158 HYDRO_PH_II.XLS

Catchment Time	5	min.
Longest Run of Pipe	1117	ft
Velocity of Flow	3	ft/s
Time in Pipe = (1117 ft)/(3.00 ft/s) =	372	s
TOTAL DEVELOPED Tc =	**11.2**	**min.**

WATER QUALITY SWALE CALCULATIONS

JOB NUMBER:	999-158
PROJECT:	REPUBLIC SERVICES
FILE:	999-158 HYDRO_PH_II.XLS

REFERENCES:
1. Clean Water Services R&O 07-20.
2. Discussions with Clean Water Services.

REQUIRED WATER QUALITY TREATMENT: 65% Phosphorus Removal.

PROPOSED TREATMENT METHODS:

1. Sumped Catch Basins	41.7 %
2. Bio-Filtration Swale	23.3 %
total	65 %

DESIGN STORM:

Precipitation:	0.36 inches
Storm Duration:	4 hours
Storm Return Period:	96 hours
Storm Window:	2 weeks

IMPERVIOUS AREA:

Watershed Area:	13.87 acres
Percent imp:	69.6 %
Impervious Area:	9.65 acres

Design Inflow = (9.65 ac)*(43560 ft^2/ac)*(0.36 in / 4.0 hrs) = **0.88 cfs**

BIOFILTRATION SWALE DESIGN CRITERIA:

Max Velocity:	0.9 ft/s
Side Slopes:	4 :1 (treatment area)
Base:	5 feet (2' min)
n Factor:	0.24 (plantings)

SWALE CHARACTERISTICS:

Q=	0.88	Design Storm Discharge (determined above)
N=	0.24	Plantings
B=	5 ft	Base width of channel
Z=	4 :1	Side slopes
SLOPE=	0.005 ft/ft	Slope of channel (0.005 minimum)
ASS. Y=	0.5 ft	Assumed depth to begin analysis (0.5 ft maximum)

ITERATIVE SOLUTION OF MANNING'S EQUATION FOR NORMAL DEPTH:

ITERATION	Y (FT)	P (FT)	A(FT^2)	R	Q (CFS)	% ERROR	V (FPS)
1	0.50	9.62	3.75	0.39	0.88	-0.19	0.23
2	0.50	9.63	3.76	0.39	0.88	0.04	0.23
3	0.50	9.63	3.75	0.39	0.88	-0.01	0.23
4	0.50	9.63	3.76	0.39	0.88	0.00	0.23
5	0.50	9.63	3.76	0.39	0.88	0.00	0.23
6	0.50	9.63	3.76	0.39	0.88	0.00	0.23
7	0.50	9.63	3.76	0.39	0.88	0.00	0.23
8	0.50	9.63	3.76	0.39	0.88	0.00	0.23
9	0.50	9.63	3.76	0.39	0.88	0.00	0.23
10	0.50	9.63	3.76	0.39	0.88	0.00	0.23
11	0.50	9.63	3.76	0.39	0.88	0.00	0.23
12	0.50	9.63	3.76	0.39	0.88	0.00	0.23
13	0.50	9.63	3.76	0.39	0.88	0.00	0.23
14	0.50	9.63	3.76	0.39	0.88	0.00	0.23
15	0.50	9.63	3.76	0.39	0.88	0.00	0.23

NORMAL DEPTH =	0.50 ft
FLOW WIDTH =	9.50 ft
VELOCITY =	0.23 ft/s
TREATMENT TIME =	9.00 min
TREATMENT LENGTH =	**126.55 ft**

SANTA BARBARA URBAN HYDROGRAPHS

JOB: 999-158
PROJECT: REPUBLIC SERVICES
FILE: 999-158 HYDRO_PH_II.XLS

DESCRIPTION	DESIGN STORM (YR)	DURATION (HR)	PRECIP (IN)	AREA TOTAL (AC)	% IMP	AREA PERV. (AC)	CN PER.	AREA IMP. (AC)	CN IMP.	TIME (MIN)	Q (CFS)
PREDEVELOPED 2-YEAR PEAK DISCHARGE	2	24	2.5	13.87	0	13.87	61.2	0.00	98	35.61	0.24
DEVELOPED 2-YEAR PEAK DISCHARGE	2	24	2.5	13.87	68.9	4.31	61.2	9.56	98	11.20	5.41
PREDEVELOPED 10-YEAR PEAK DISCHARGE	10	24	3.45	13.87	0	13.87	61.2	0.00	98	35.61	0.54
DEVELOPED 10-YEAR PEAK DISCHARGE	10	24	3.45	13.87	68.9	4.31	61.2	9.56	98	11.20	7.67
PREDEVELOPED 25-YEAR PEAK DISCHARGE	25	24	3.9	13.87	0	13.87	61.2	0.00	98	35.61	0.75
DEVELOPED 25-YEAR PEAK DISCHARGE	25	24	3.9	13.87	68.9	4.31	61.2	9.56	98	11.20	8.89

STORMWATER CONVEYANCE CALCULATIONS

JOB: 999-158
PROJECT: REPUBLIC SERVICES
FILE: 999-158 HYDRO_PH_II.XLS

Design Storm: 25 YR
Storm Duration: 24 HRS
Precipitation: 3.9 IN
Manning's "n" 0.013

LINE	INC. AREA (AC)	AREA TOTAL (AC)	% IMP.	AREA PERV. (AC)	CN PER.	AREA IMP. (AC)	CN IMP.	TIME (MIN)	Q (CFS)	PIPE SIZE (IN)	SLOPE (FT/FT)	Qf (CFS)	Q/Qf (%)	Vf (FPS)	V/Vf (%)	ACTUAL V (FPS)
SHED	13.87	13.87	68.88	4.32	61.2	9.55	98	11.20	8.89	18	0.0050	7.45	1.19	4.21	1.39	5.87
SHED	13.87	13.87	68.88	4.32	61.2	9.55	98	11.20	8.89	21	0.0050	11.23	0.79	4.67	0.99	4.63

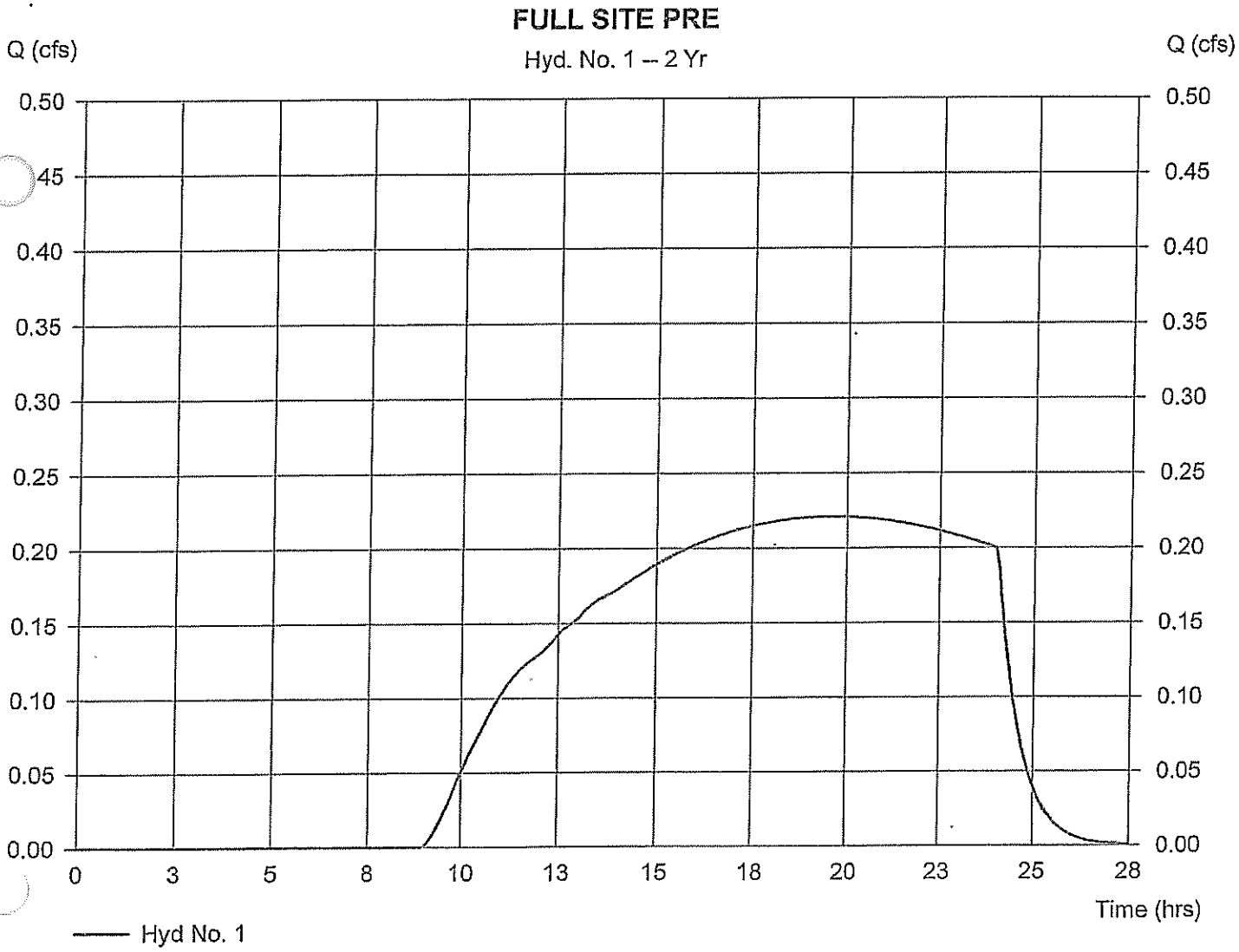
Hydrograph Plot

Hyd. No. 1

FULL SITE PRE

Hydrograph type	= SBUH Runoff	Peak discharge	= 0.22 cfs
Storm frequency	= 2 yrs	Time interval	= 5 min
Drainage area	= 13.880 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 35.60 min
Total precip.	= 2.50 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= N/A

Hydrograph Volume = 9,869 cuft



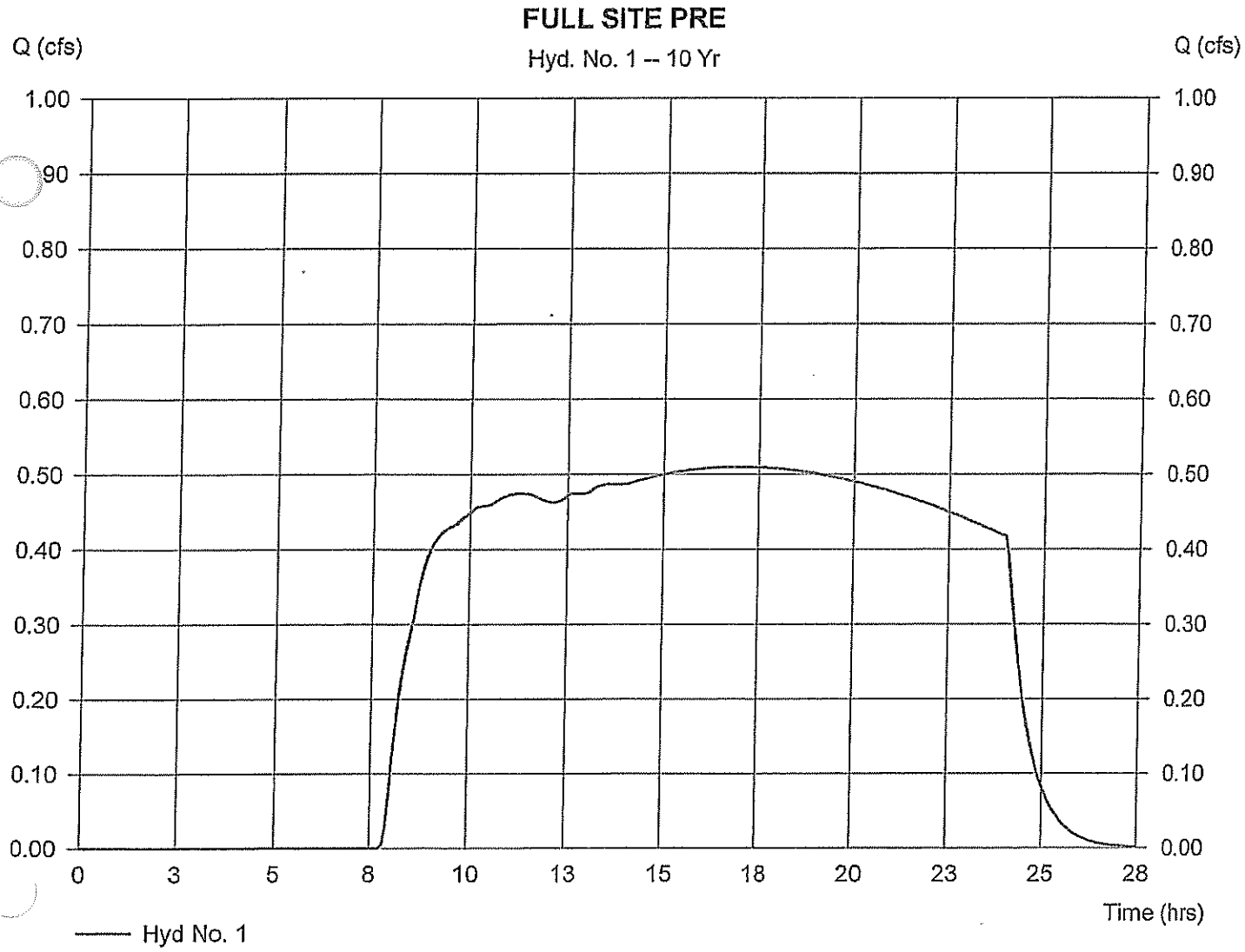
Hydrograph Plot

Hyd. No. 1

FULL SITE PRE

Hydrograph type	= SBUH Runoff	Peak discharge	= 0.51 cfs
Storm frequency	= 10 yrs	Time interval	= 5 min
Drainage area	= 13.880 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 35.60 min
Total precip.	= 3.45 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= N/A

Hydrograph Volume = 27,735 cuft



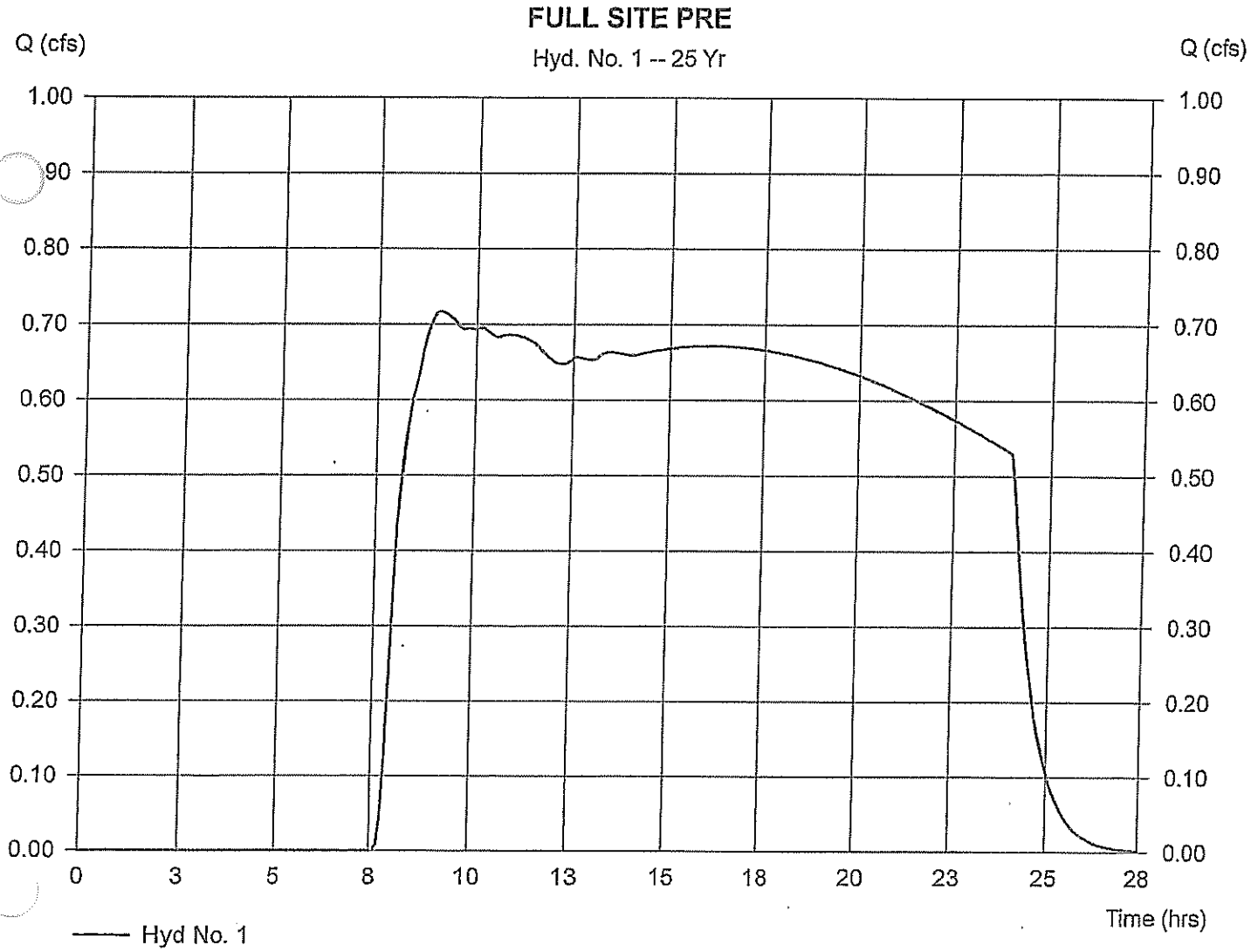
Hydrograph Plot

Hyd. No. 1

FULL SITE PRE

Hydrograph type	= SBUH Runoff	Peak discharge	= 0.72 cfs
Storm frequency	= 25 yrs	Time interval	= 5 min
Drainage area	= 13.880 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 35.60 min
Total precip.	= 3.90 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= N/A

Hydrograph Volume = 38,404 cuft



Hydrograph Plot

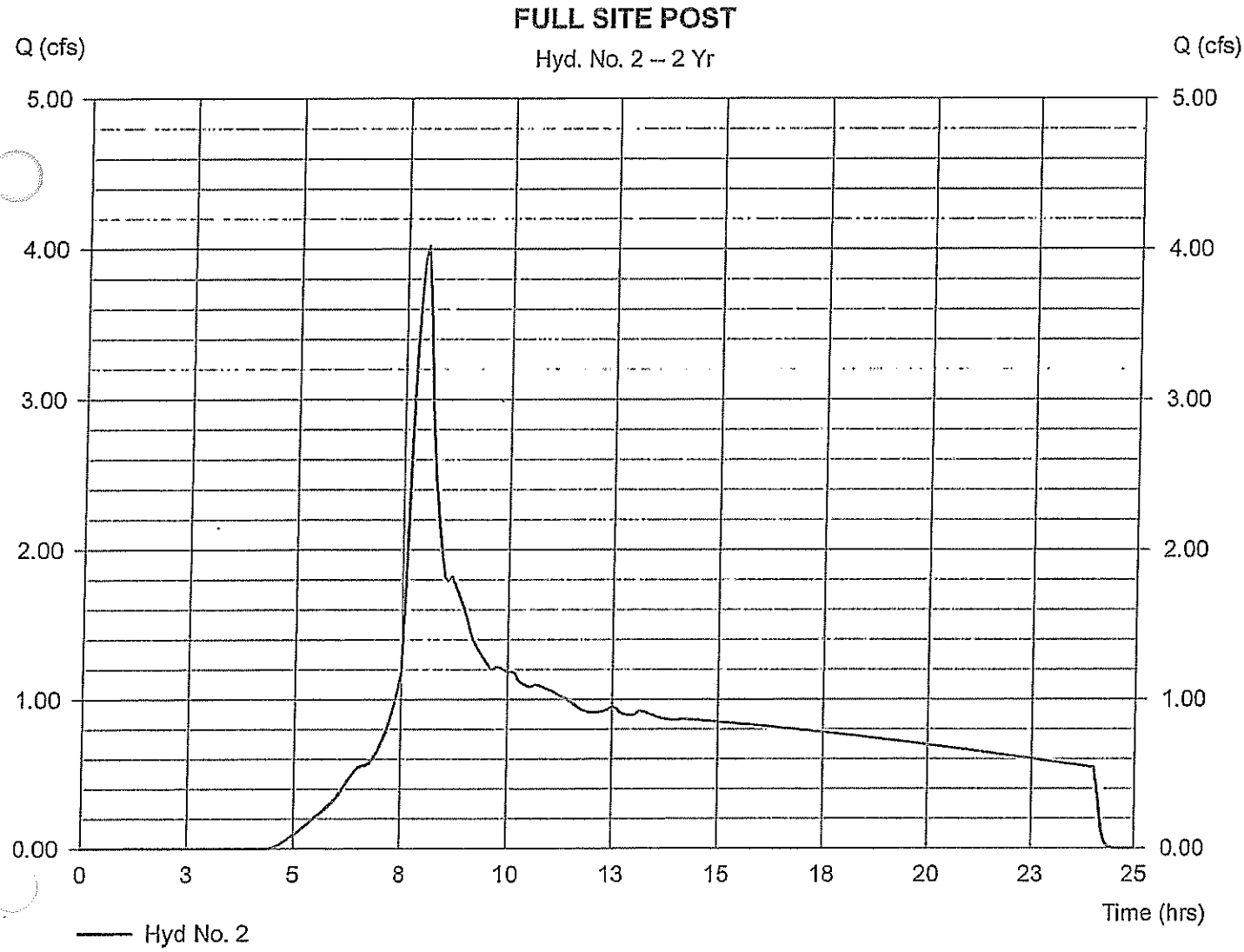
draflow Hydrographs by Intelisolve — Friday, May 16 2014, 8:57 AM

Hyd. No. 2

FULL SITE POST

Hydrograph type	= SBUH Runoff	Peak discharge	= 4.02 cfs
Storm frequency	= 2 yrs	Time interval	= 5 min
Drainage area	= 13.880 ac	Curve number	= 86
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 2.50 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= N/A

Hydrograph Volume = 62,652 cuft



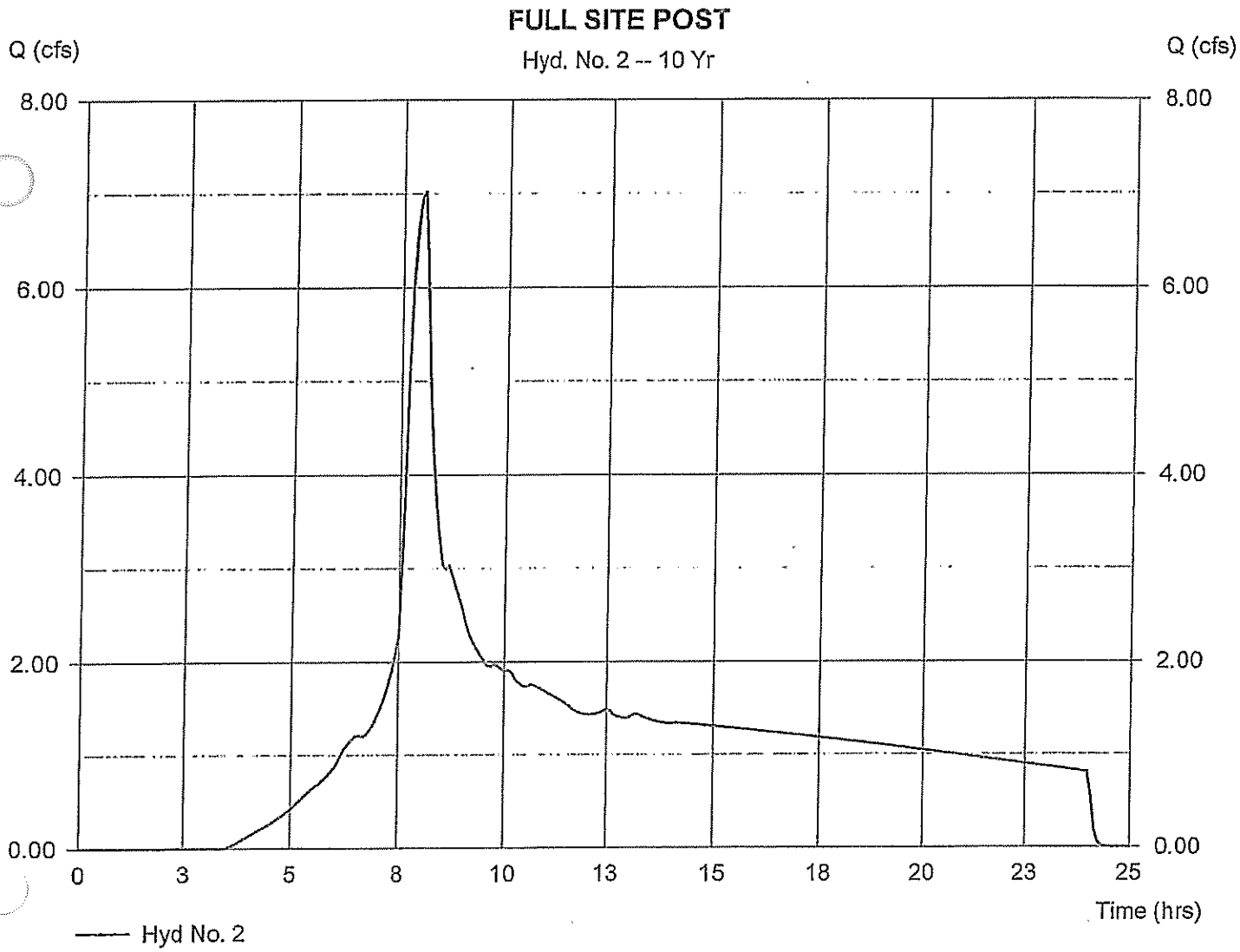
Hydrograph Plot

Hyd. No. 2

FULL SITE POST

Hydrograph type	= SBUH Runoff	Peak discharge	= 7.02 cfs
Storm frequency	= 10 yrs	Time interval	= 5 min
Drainage area	= 13.880 ac	Curve number	= 86
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.45 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= N/A

Hydrograph Volume = 103,497 cuft



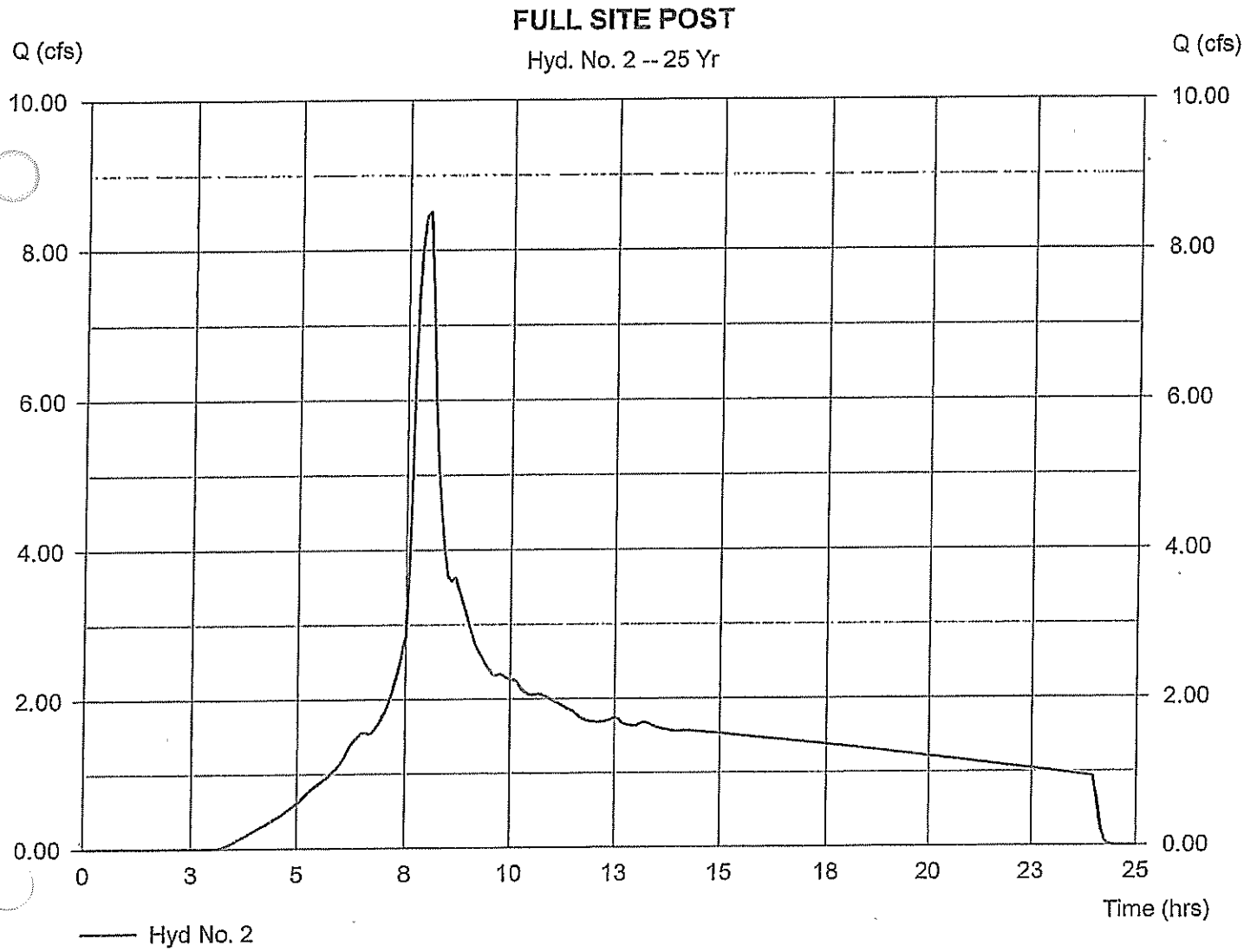
Hydrograph Plot

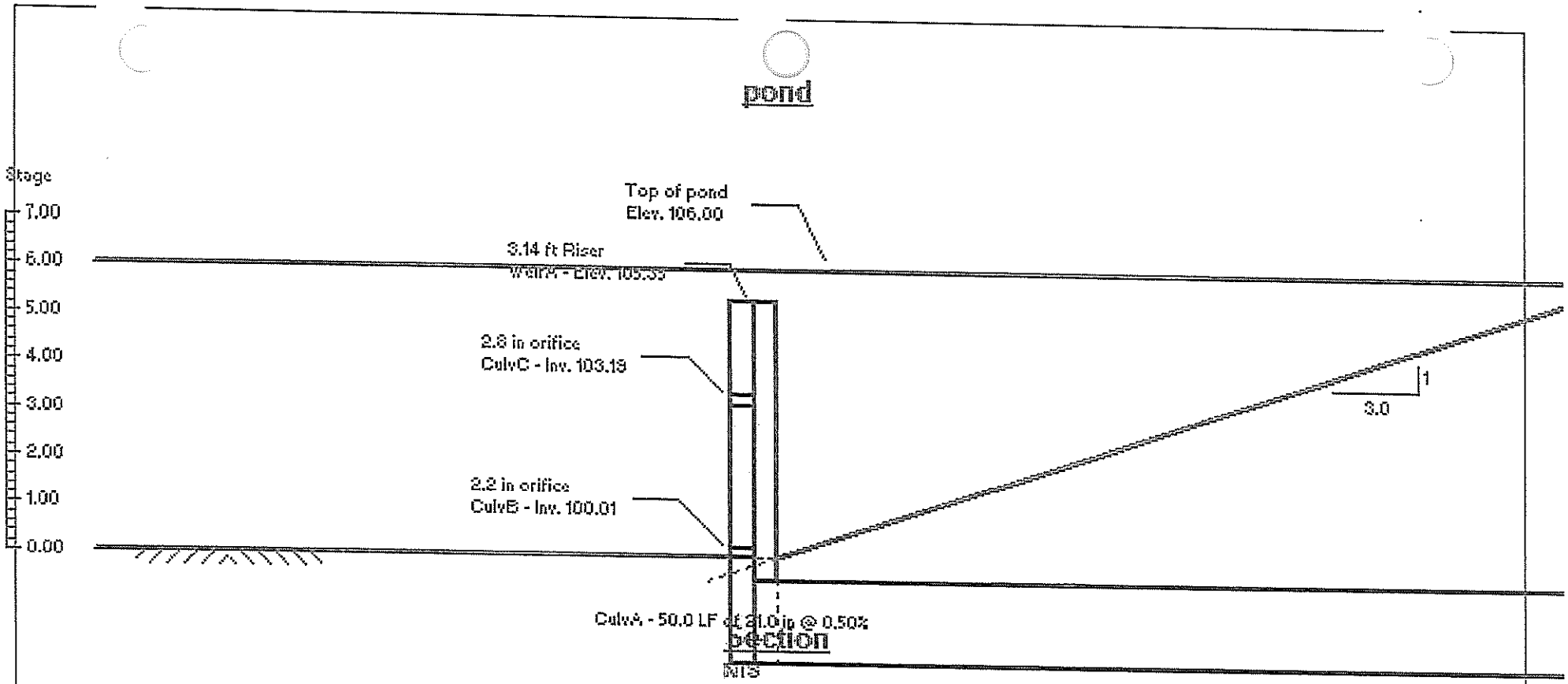
Hyd. No. 2

FULL SITE POST

Hydrograph type	= SBUH Runoff	Peak discharge	= 8.51 cfs
Storm frequency	= 25 yrs	Time interval	= 5 min
Drainage area	= 13.880 ac	Curve number	= 86
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.90 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= N/A

Hydrograph Volume = 123,740 cuft

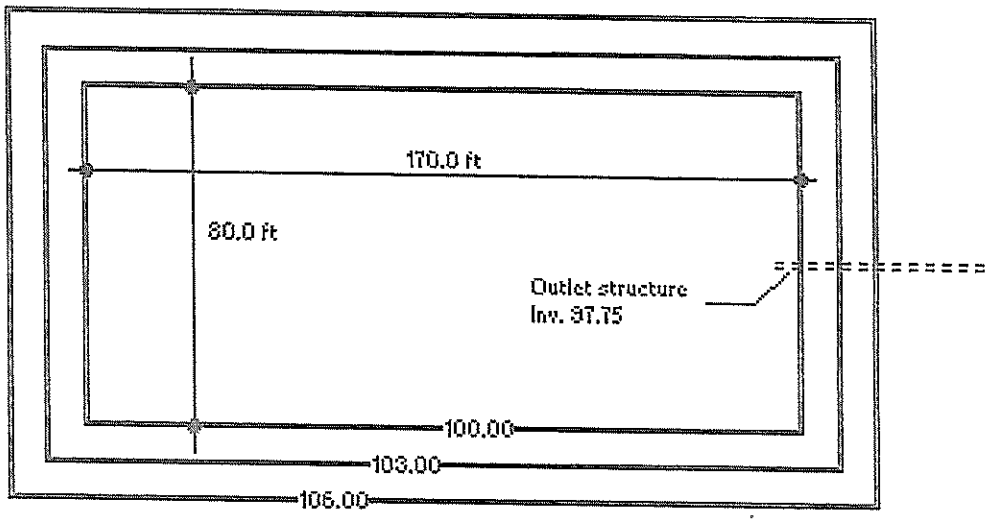




Schematic only. Not for construction.

Hydraflow Hydrographs Pond Draw	Project: 999-158 PHII.gpw	Friday, May 16 2014, 9:01 AM

pond



Plan View

NTS

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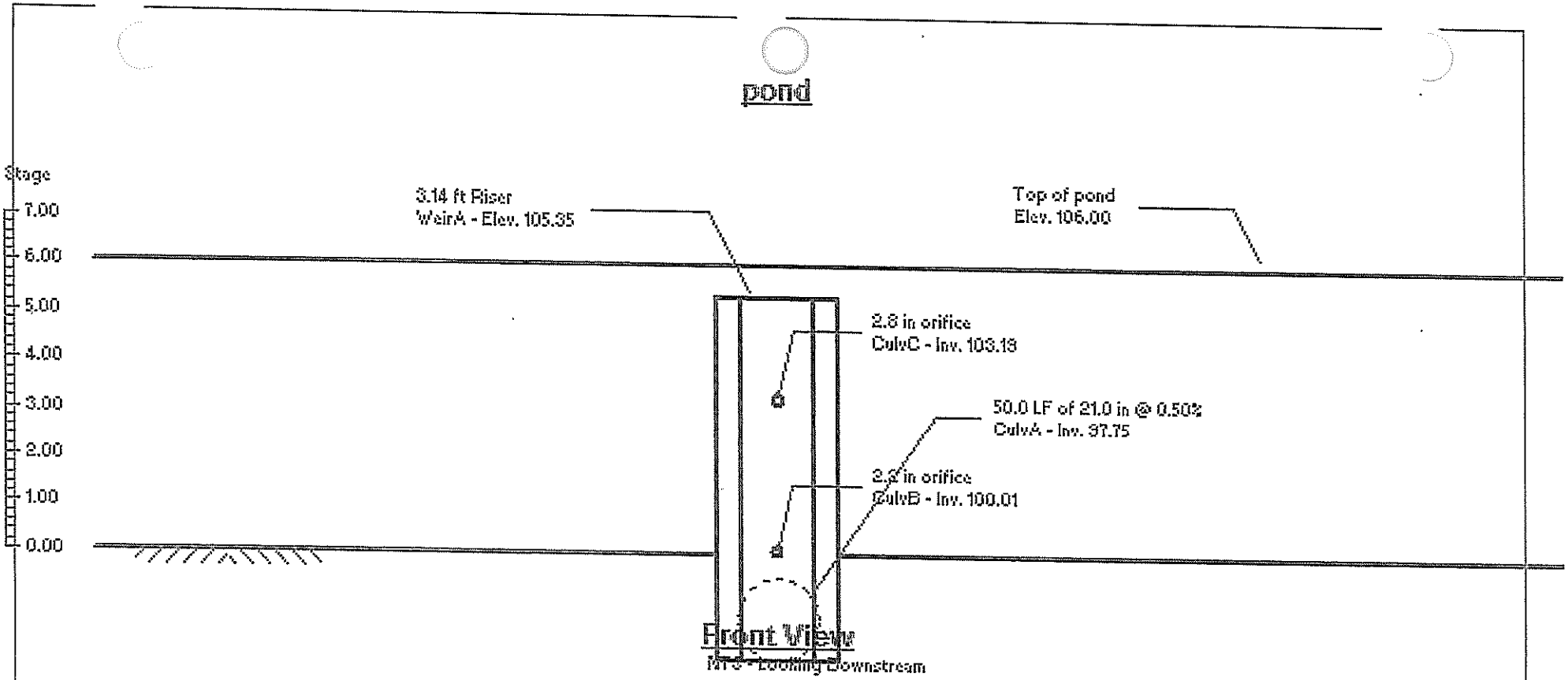


Schematic only. Not for construction.

Hydraflow Hydrographs Pond Draw	Project: 999-158 PHII.gpw	Friday, May 16 2014, 8:58 AM

Table of Contents

Hydrograph Return Period Recap

Hydrograph No.	Hydrograph type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)								Hydrograph description
			1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	
1	SBUH Runoff	-------	-------	0.22	-------	-------	0.51	0.72	-------	-------	FULL SITE PRE
2	SBUH Runoff	-------	-------	4.02	-------	-------	7.02	8.51	-------	-------	FULL SITE POST
3	Reservoir	2	-------	0.22	-------	-------	0.51	0.64	-------	-------	pond

Hydrograph Summary Report

Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1 SBUH Runoff	0.22	5	1175	9,869	----	------	------	FULL SITE PRE
2 SBUH Runoff	4.02	5	480	62,652	----	------	------	FULL SITE POST
3 Reservoir	0.22	5	1450	62,210	2	103.19	51,451	pond

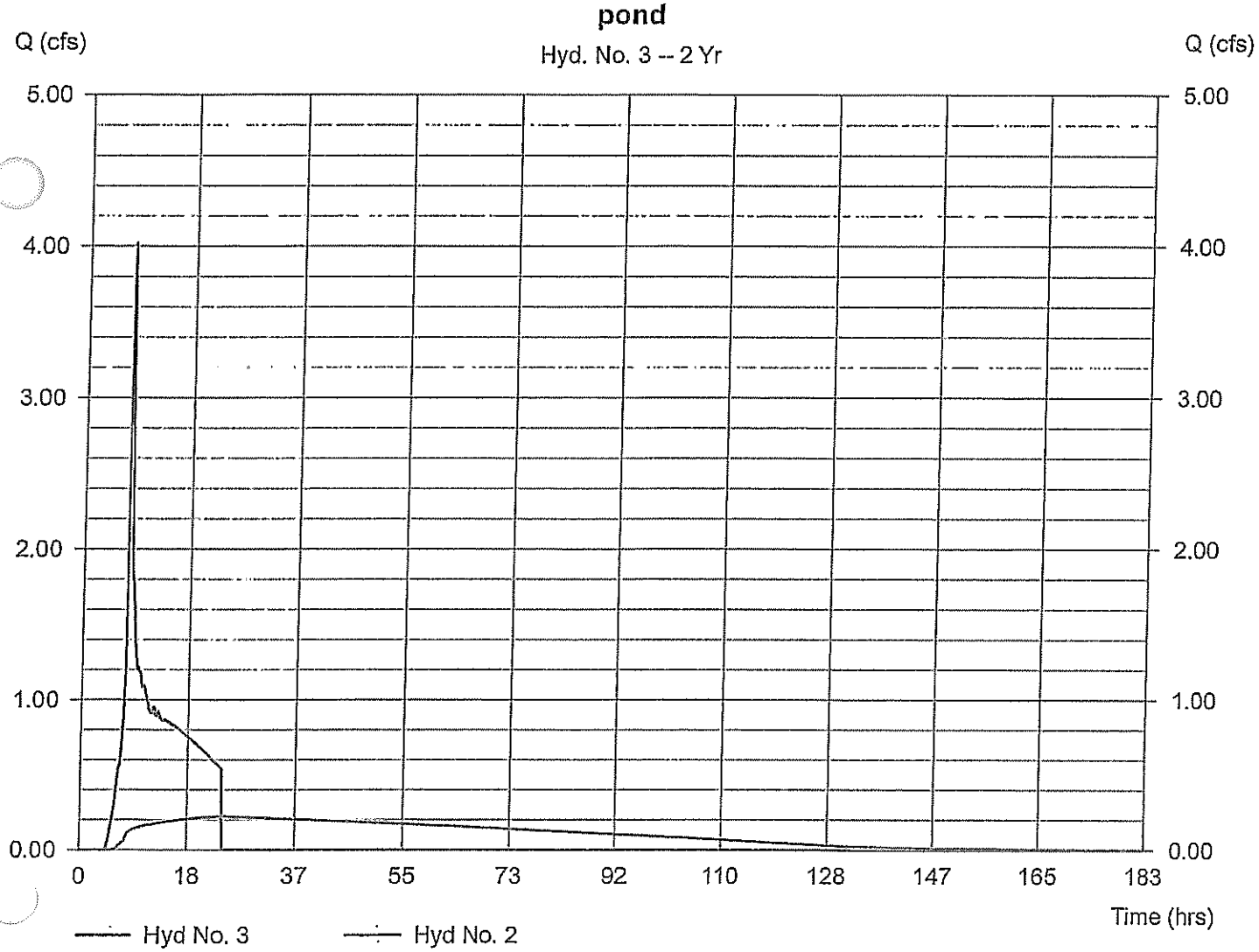
Hydrograph Plot

Hyd. No. 3

pond

Hydrograph type	= Reservoir	Peak discharge	= 0.22 cfs
Storm frequency	= 2 yrs	Time interval	= 5 min
Inflow hyd. No.	= 2	Max. Elevation	= 103.19 ft
Reservoir name	= pond	Max. Storage	= 51,451 cuft

Storage Indication method used. Hydrograph Volume = 62,210 cuft



Pond Report

Pond No. 1 - pond

Pond Data

Bottom LxW = 170.0 x 80.0 ft Side slope = 3.0:1 Bottom elev. = 100.00 ft Depth = 6.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	100.00	13,600	0	0
0.30	100.30	14,053	4,148	4,148
0.60	100.60	14,513	4,285	8,433
0.90	100.90	14,979	4,424	12,856
1.20	101.20	15,452	4,564	17,421
1.50	101.50	15,931	4,707	22,128
1.80	101.80	16,417	4,852	26,980
2.10	102.10	16,909	4,999	31,979
2.40	102.40	17,407	5,147	37,126
2.70	102.70	17,912	5,298	42,424
3.00	103.00	18,424	5,450	47,874
3.30	103.30	18,942	5,605	53,479
3.60	103.60	19,467	5,761	59,240
3.90	103.90	19,998	5,919	65,159
4.20	104.20	20,535	6,080	71,239
4.50	104.50	21,079	6,242	77,481
4.80	104.80	21,629	6,406	83,887
5.10	105.10	22,186	6,572	90,459
5.40	105.40	22,750	6,740	97,200
5.70	105.70	23,320	6,910	104,110
6.00	106.00	23,896	7,082	111,192

Culvert / Orifice Structures

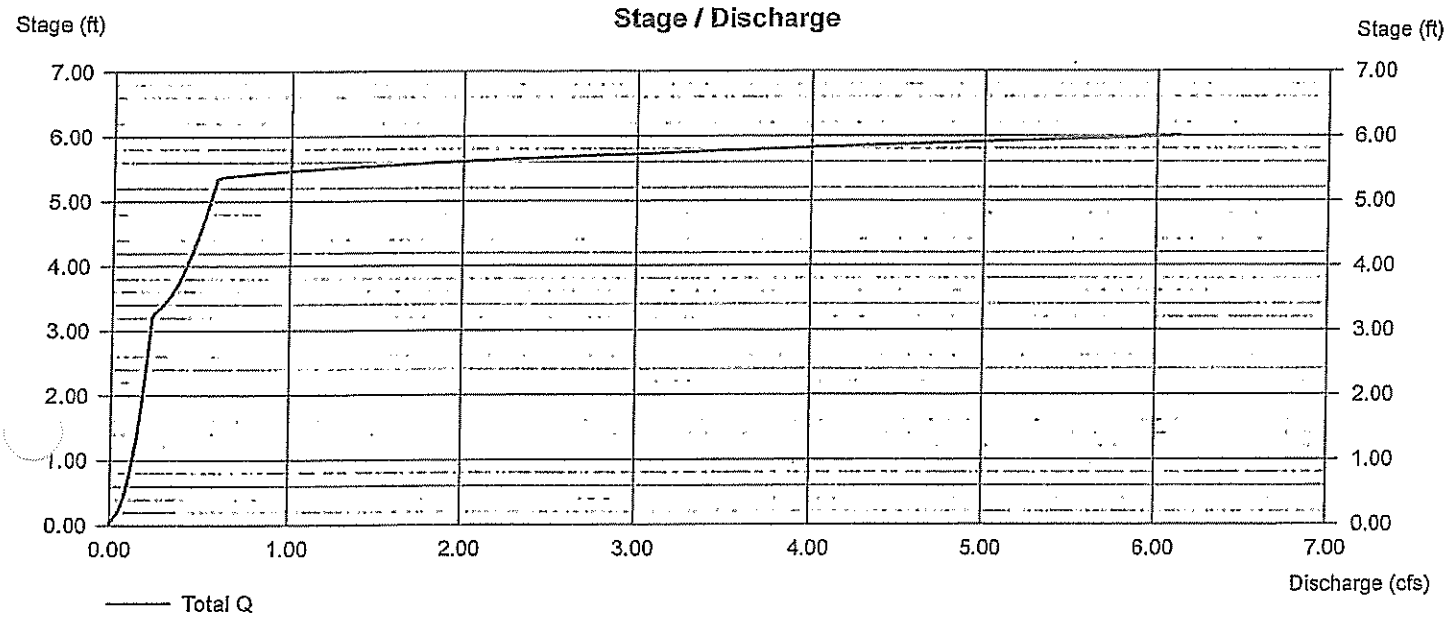
	[A]	[B]	[C]	[D]
Rise (in)	= 21.00	2.20	2.80	0.00
Span (in)	= 21.00	2.20	2.80	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 97.75	100.01	103.19	0.00
Length (ft)	= 50.00	0.00	0.00	0.00
Slope (%)	= 0.50	0.00	0.00	0.00
N-Value	= .013	.013	.013	.013
Orif. Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.14	0.00	0.00	0.00
Crest El. (ft)	= 105.35	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	0.00	0.00
Weir Type	= Riser	---	---	---
Multi-Stage	= Yes	No	No	No

Exfiltration = 0.000 in/hr (Wet area) Tailwater Elev. = 0.00 ft

Note: Culvert/Orifice outflows have been analyzed under inlet and outlet control.



Hydrograph Summary Report

	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SBUH Runoff	0.51	5	1020	27,735	----	------	------	FULL SITE PRE
2	SBUH Runoff	7.02	5	480	103,497	----	------	------	FULL SITE POST
3	Reservoir	0.51	5	1445	103,055	2	104.69	81,453	pond

Hydrograph Plot

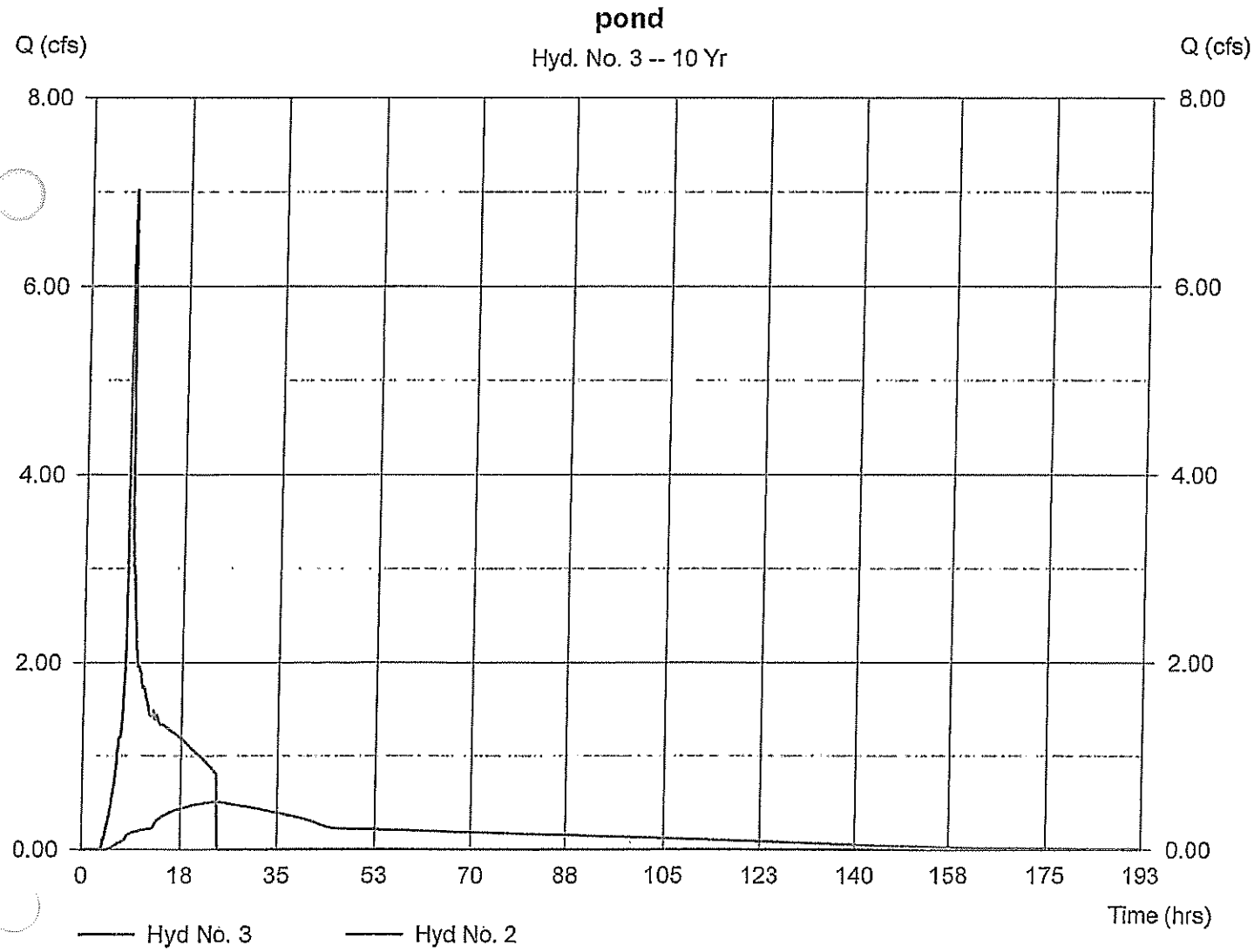
Hyd. No. 3

pond

Hydrograph type	= Reservoir	Peak discharge	= 0.51 cfs
Storm frequency	= 10 yrs	Time interval	= 5 min
Inflow hyd. No.	= 2	Max. Elevation	= 104.69 ft
Reservoir name	= pond	Max. Storage	= 81,453 cuft

Storage Indication method used.

Hydrograph Volume = 103,055 cuft



Pond Report

Hydraflow Hydrographs by Intelisolve

Friday, May 16 2014, 9:2 AM

Pond No. 1 - pond

Pond Data

Bottom LxW = 170.0 x 80.0 ft Side slope = 3.0:1 Bottom elev. = 100.00 ft Depth = 6.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	100.00	13,600	0	0
0.30	100.30	14,053	4,148	4,148
0.60	100.60	14,513	4,285	8,433
0.90	100.90	14,979	4,424	12,856
1.20	101.20	15,452	4,564	17,421
1.50	101.50	15,931	4,707	22,128
1.80	101.80	16,417	4,852	26,980
2.10	102.10	16,909	4,999	31,979
2.40	102.40	17,407	5,147	37,126
2.70	102.70	17,912	5,298	42,424
3.00	103.00	18,424	5,450	47,874
3.30	103.30	18,942	5,605	53,479
3.60	103.60	19,467	5,761	59,240
3.90	103.90	19,998	5,919	65,159
4.20	104.20	20,535	6,080	71,239
4.50	104.50	21,079	6,242	77,481
4.80	104.80	21,629	6,406	83,887
5.10	105.10	22,186	6,572	90,459
5.40	105.40	22,750	6,740	97,200
5.70	105.70	23,320	6,910	104,110
6.00	106.00	23,896	7,082	111,192

Culvert / Orifice Structures

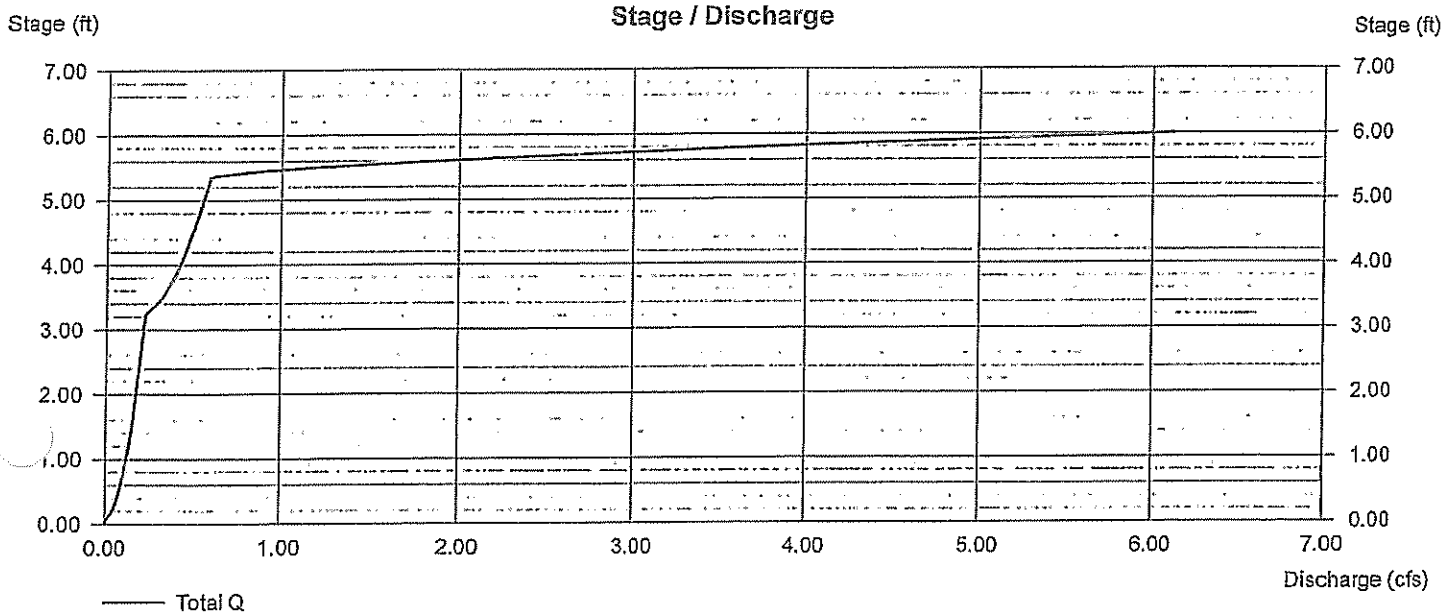
	[A]	[B]	[C]	[D]
Rise (in)	= 21.00	2.20	2.80	0.00
Span (in)	= 21.00	2.20	2.80	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 97.75	100.01	103.19	0.00
Length (ft)	= 50.00	0.00	0.00	0.00
Slope (%)	= 0.50	0.00	0.00	0.00
N-Value	= .013	.013	.013	.013
Orif. Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.14	0.00	0.00	0.00
Crest El. (ft)	= 105.35	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	0.00	0.00
Weir Type	= Riser	---	---	---
Multi-Stage	= Yes	No	No	No

Exfiltration = 0.000 in/hr (Wet area) Tailwater Elev. = 0.00 ft

Note: Culvert/Orifice outflows have been analyzed under inlet and outlet control.



Hydrograph Summary Report

	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SBUH Runoff	0.72	5	545	38,404	----	------	------	FULL SITE PRE
2	SBUH Runoff	8.51	5	480	123,740	----	-------	------	FULL SITE POST
3	Reservoir	0.64	5	1445	123,298	2	105.38	96,692	pond

Hydrograph Plot

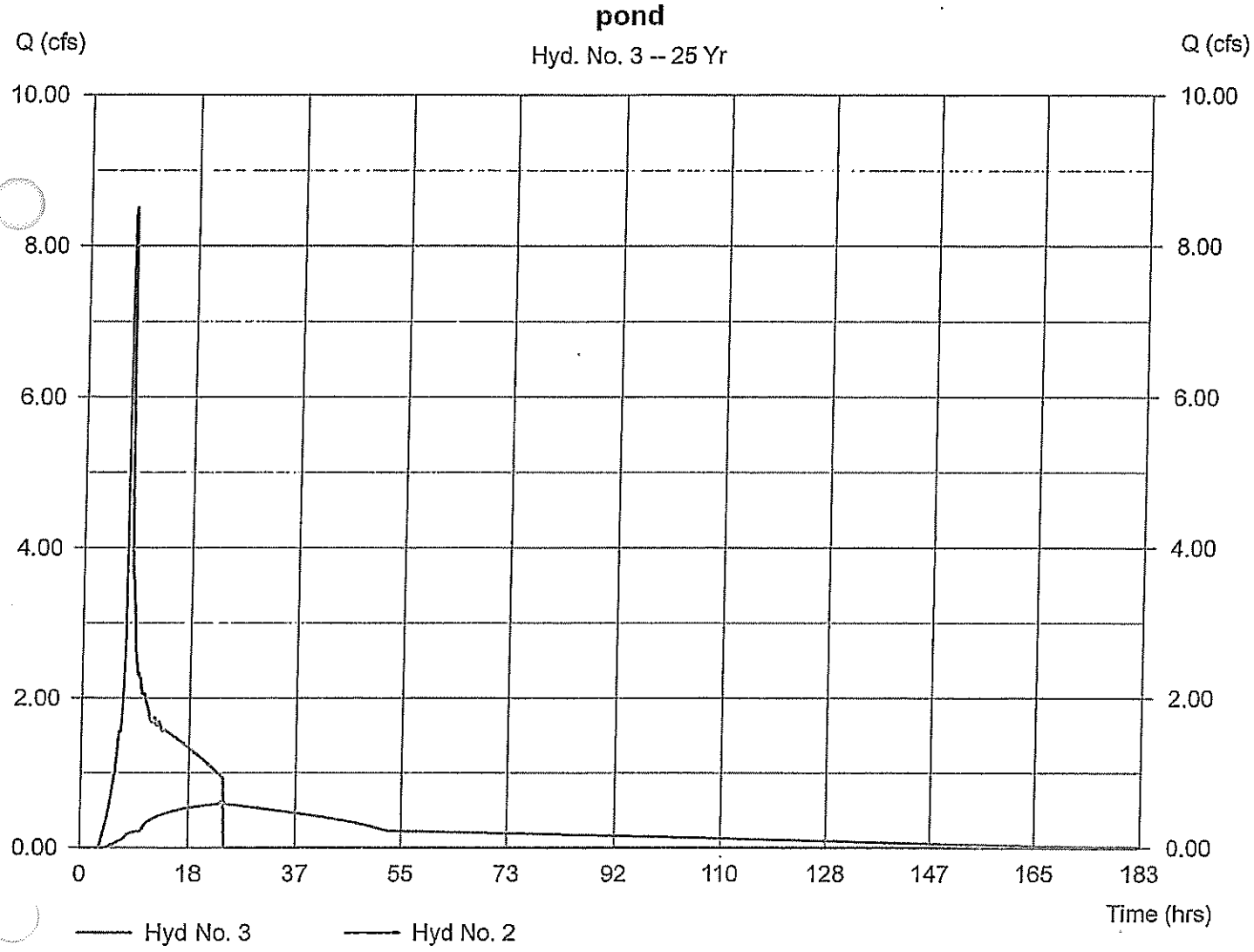
Hyd. No. 3

pond

Hydrograph type	= Reservoir	Peak discharge	= 0.64 cfs
Storm frequency	= 25 yrs	Time interval	= 5 min
Inflow hyd. No.	= 2	Max. Elevation	= 105.38 ft
Reservoir name	= pond	Max. Storage	= 96,692 cuft

Storage Indication method used.

Hydrograph Volume = 123,298 cuft



Pond Report

Pond No. 1 - pond

Pond Data

Bottom LxW = 170.0 x 80.0 ft Side slope = 3.0:1 Bottom elev. = 100.00 ft Depth = 6.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	100.00	13,600	0	0
0.30	100.30	14,053	4,148	4,148
0.60	100.60	14,513	4,285	8,433
0.90	100.90	14,979	4,424	12,856
1.20	101.20	15,452	4,564	17,421
1.50	101.50	15,931	4,707	22,128
1.80	101.80	16,417	4,852	26,980
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3.60	103.60	19,467	5,761	59,240
3.90	103.90	19,998	5,919	65,159
4.20	104.20	20,535	6,080	71,239
4.50	104.50	21,079	6,242	77,481
4.80	104.80	21,629	6,406	83,887
5.10	105.10	22,186	6,572	90,459
5.40	105.40	22,750	6,740	97,200
5.70	105.70	23,320	6,910	104,110
6.00	106.00	23,896	7,082	111,192

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
ise (in)	= 21.00	2.20	2.80	0.00
Span (in)	= 21.00	2.20	2.80	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 97.75	100.01	103.19	0.00
Length (ft)	= 50.00	0.00	0.00	0.00
Slope (%)	= 0.50	0.00	0.00	0.00
N-Value	= .013	.013	.013	.013
Orif. Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

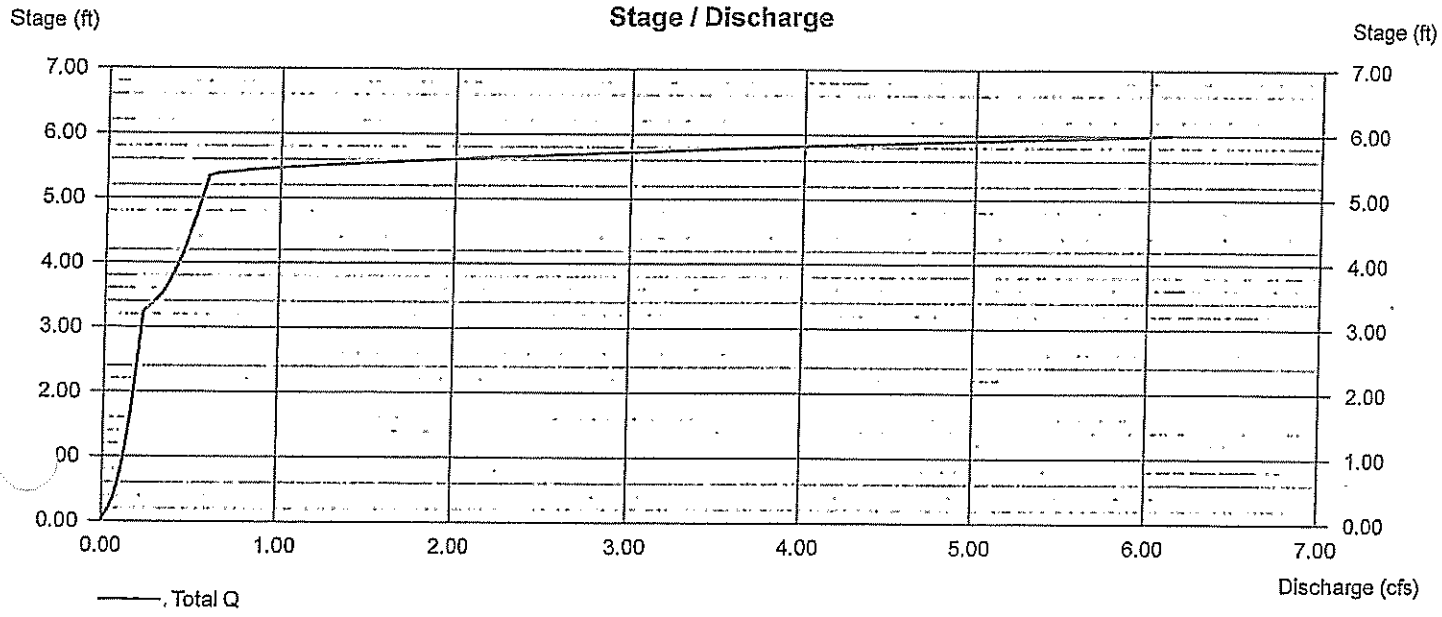
Weir Structures

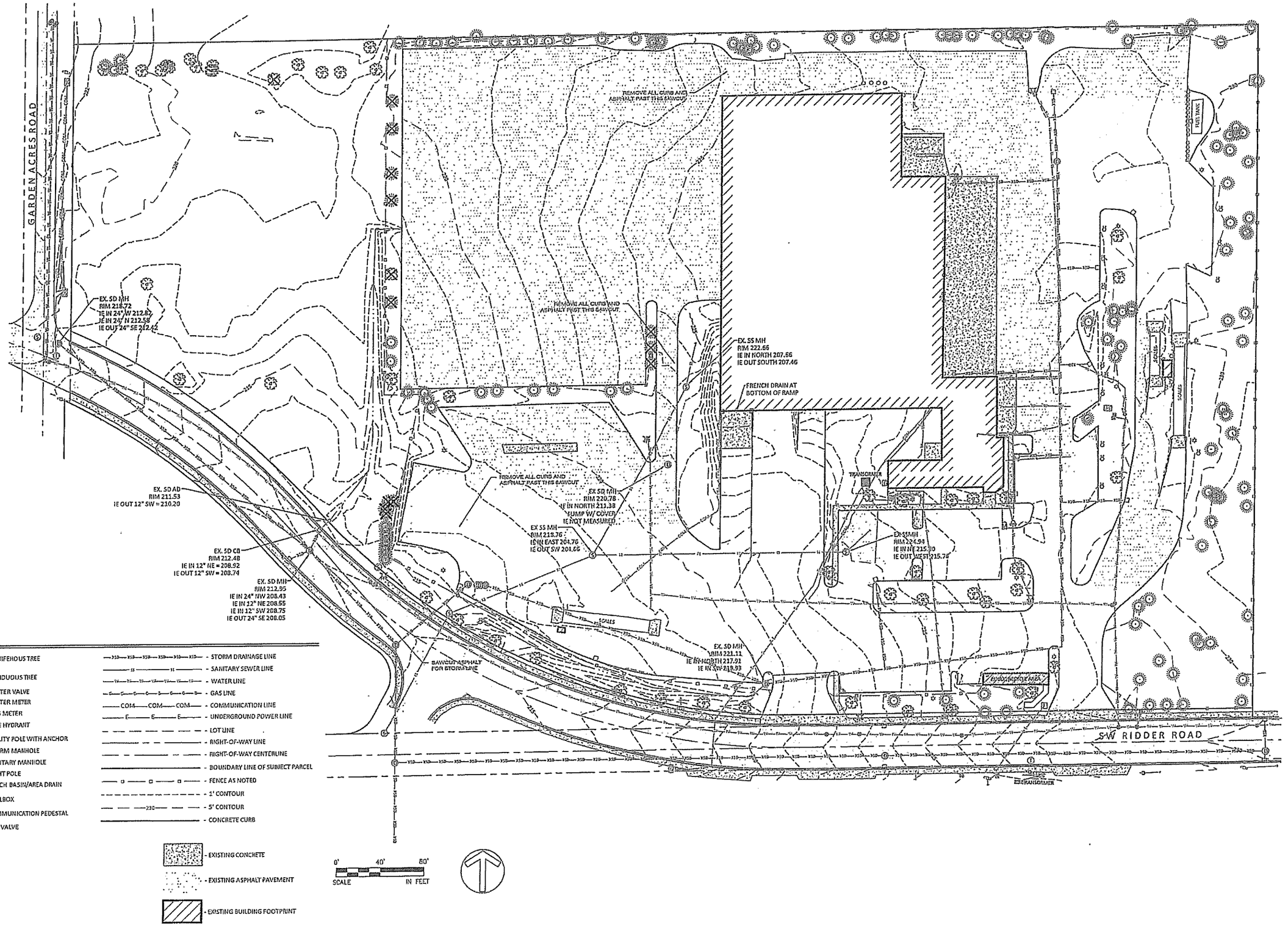
	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.14	0.00	0.00	0.00
Crest El. (ft)	= 105.35	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	0.00	0.00
Weir Type	= Riser	---	---	---
Multi-Stage	= Yes	No	No	No

Exfiltration = 0.000 in/hr (Wet area) Tailwater Elev. = 0.00 ft

Note: Culvert/Orifice outflows have been analyzed under inlet and outlet control.

Stage / Discharge





LEGEND:

- CONIFEROUS TREE
- DECIDUOUS TREE
- WATER VALVE
- WATER METER
- GAS METER
- FIRE HYDRANT
- UTILITY POLE WITH ANCHOR
- STORM MANHOLE
- SANITARY MANHOLE
- LIGHT POLE
- CATCH BASIN/AREA DRAIN
- MAILBOX
- COMMUNICATION PEDESTAL
- GAS VALVE
- STORM DRAINAGE LINE
- SANITARY SEWER LINE
- WATER LINE
- GAS LINE
- COMMUNICATION LINE
- UNDERGROUND POWER LINE
- LOT LINE
- RIGHT-OF-WAY LINE
- RIGHT-OF-WAY CENTERLINE
- BOUNDARY LINE OF SUBJECT PARCEL
- FENCE AS NOTED
- 1' CONTOUR
- 5' CONTOUR
- CONCRETE CURB
- EXISTING CONCRETE
- EXISTING ASPHALT PAVEMENT
- EXISTING BUILDING FOOTPRINT

SFA Design Group, LLC
STRUCTURAL | CIVIL | PLANNING | SURVEYING
9020 SW Washington Square Dr, Suite 395
Portland, Oregon 97223
Ph: (503) 641-8311 Fax: (503) 643-7995
http://www.sfadg.com

EXISTING CONDITIONS AND DEMOLITION PLAN

REPUBLIC SERVICES
WILSONVILLE, OREGON

OREGON PROFESSIONAL ENGINEER 54622PE
EXPIRES: DEC. 31, 2015
BRENT E. FITTS
VALID THROUGH 12-31-15

NO.	DATE	REVISION	BY
-	-	-	-

DESIGNED BY SFG DATE 4/14
DRAWN BY SFG DATE 4/14
REVIEWED BY BEF DATE 4/14
PROJECT NO. 999-158 REF.
SCALE 1" = 40'
999158_GCexist.dwg

SHEET 3 OF 15

PROJECT NO. REPUBLIC 999-158

GARDEN ACRES ROAD

EL=224.37

SAWCUT AND MATCH GRADE

EL=222.07

NON-STRUCTURAL INTER-LOCKING BLOCK WALL (DESIGNED BY OTHERS)

EL=221.08

INSTALL 30° ELBOW AND SS CO RIM=222.20 IE=216.68

<-- S=3% IE=217.03

INSTALL SS CO RIM=221.23 IE=216.29

PROPOSED BUILDING FF=225.35

INSTALL 45° ELBOW AND SS CO RIM=220.38 IE=215.90

6" DOM FIRE SERVICE

EXISTING BUILDING

INSTALL 2" WATER METER W/ APPROVED BACKFLOW PREVENTER

2" WIRSBO WATER SERVICE

EL=219.84

EX. SD MH RIM 218.72 IE IN 24" W 212.82 IE IN 24" N 212.58 IE OUT 24" SE 212.42

WATER QUALITY SWALE (SEE DETAIL, SHEET 9)

INSTALL 3CY RIP RAP CLASS 50

INSTALL SS CO RIM=222.51 IE=215.33

SAWCUT AND MATCH GRADE

NEW IE IN(NW)=208.00 BORE AND GROUT NEW LINE

INSTALL 3CY RIP RAP CLASS 50

CONNECT TO EXISTING FV SERVICE PRIOR TO VALVE AND EXTEND TO PROPOSED BUILDING

TRANSFORMER

EL: 212.69

EL: 212.95

SW RIDDER ROAD

TRANSFORMER

LEGEND:

- LOT LINE
- RIGHT-OF-WAY LINE
- RIGHT-OF-WAY CENTERLINE
- BOUNDARY LINE OF SUBJECT PARCEL
- 1' CONTOUR
- 5' CONTOUR
- CONCRETE CURB
- PROPOSED CURB
- PROPOSED SIDEWALK
- PROPOSED ASPHALT
- PROPOSED LANDSCAPED AREA
- RETAINING WALL
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- SWALE CENTERLINE
- RIP RAP PAD
- CONIFEROUS TREE
- DECIDUOUS TREE
- TREE TO BE REMOVED
- TREE PROTECTION FENCING
- 172.0 TW / 167.0 FG TOP OF WALL ELEVATION / FINISHED GRADE ELEVATION

0 40 80

SCALE IN FEET

SFA Design Group, LLC
STRUCTURAL | CIVIL | PLANNING | SURVEYING
3933 SW Washington Square Dr, Suite 505
Portland, Oregon 97223
Ph: (503) 641-8311 Fax: (503) 643-7995
http://www.sfadg.com

GRADING PLAN

REPUBLIC SERVICES
WILSONVILLE, OREGON

REGISTERED PROFESSIONAL ENGINEER — OREGON JULY 12, 2005 — BRENT E. FISH

VALID THROUGH 12-31-15

NO.	DATE	REVISION	BY
-	-	-	-

DESIGNED BY SFG DATE 4/14
DRAWN BY SFG DATE 4/14
REVIEWED BY BEF DATE 4/14
PROJECT NO. 999-03 REF. ____
SCALE 1" = 40'

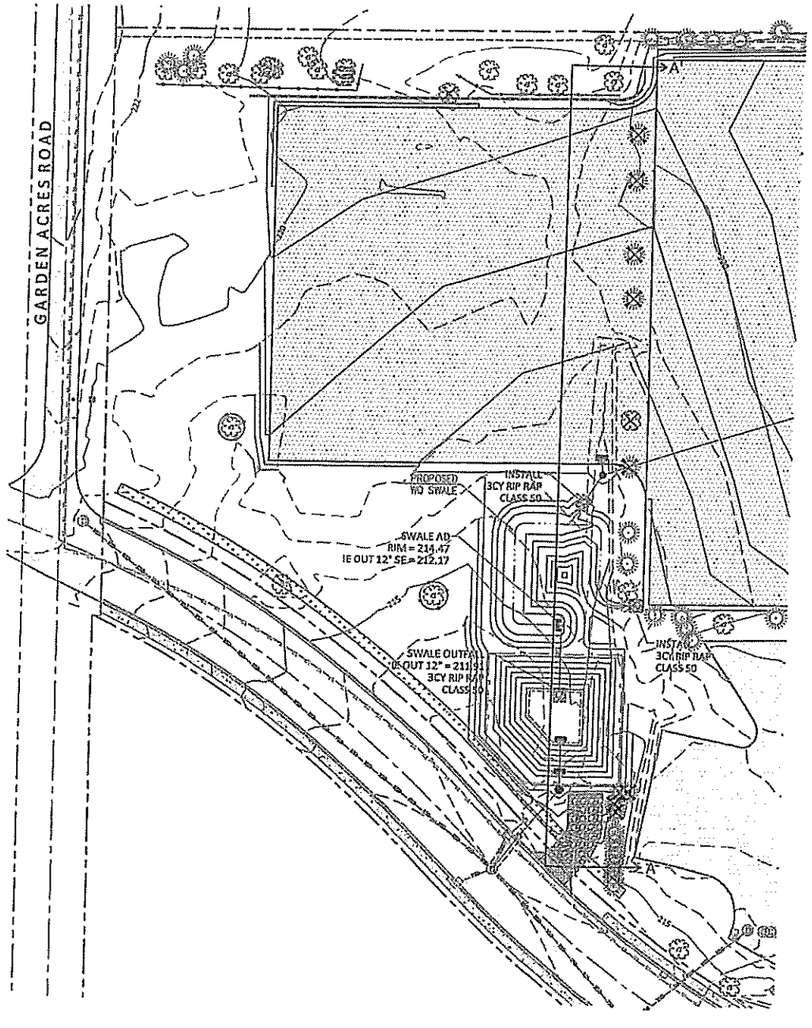
999159_05grading

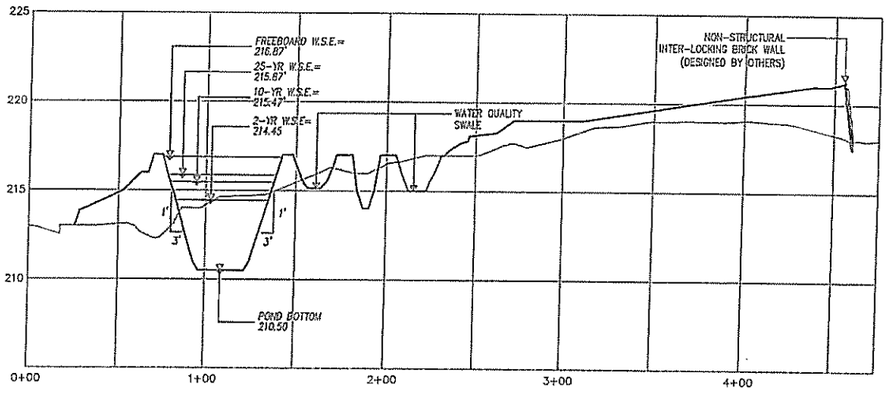
SHEET 6 OF 15

PROJECT REPUBLIC

LEGEND:

- CONIFEROUS TREE
- DECIDUOUS TREE
- TREE TO BE REMOVED
- TREE PROTECTION FENCING
- STORM DRAINAGE LINE
- 1' CONTOUR
- 210 - 5' CONTOUR
- RETAINING WALL
- 214 - PROPOSED 1' CONTOUR
- 215 - PROPOSED 5' CONTOUR
- SWALE CENTERLINE
- RIP RAP PAD





SITE CROSS SECTION A-A'
HORZ. 1"=40'
VERT. 1"=4'

0 40 80

SFA Design Group, LLC
STRUCTURAL | CIVIL | PLANNING | SURVEYING
9020 SW Washington Square Dr. Suite 505
Portland, Oregon 97223
Ph: (503) 641-4311 Fax: (503) 643-7555
http://www.sfadg.com

SITE CROSS SECTIONS

REPUBLIC SERVICES
WILSONVILLE, OREGON

REGISTERED PROFESSIONAL ENGINEER
OREGON
APR. 12, 2005
BRENT E. FITT
VALID THROUGH 12-31-15

NO.	DATE	REVISION	BY

DESIGNED BY SFG DATE 4/14
DRAWN BY SFG DATE 4/14
REVIEWED BY BEF DATE 4/14
PROJECT NO. 999-153 REF.
SCALE 1" = 40'/4'
999153_07pond.dwg

SHEET 7 OF 15

Tax Map

SW1/4 SECTIO T3S R1W W.M.

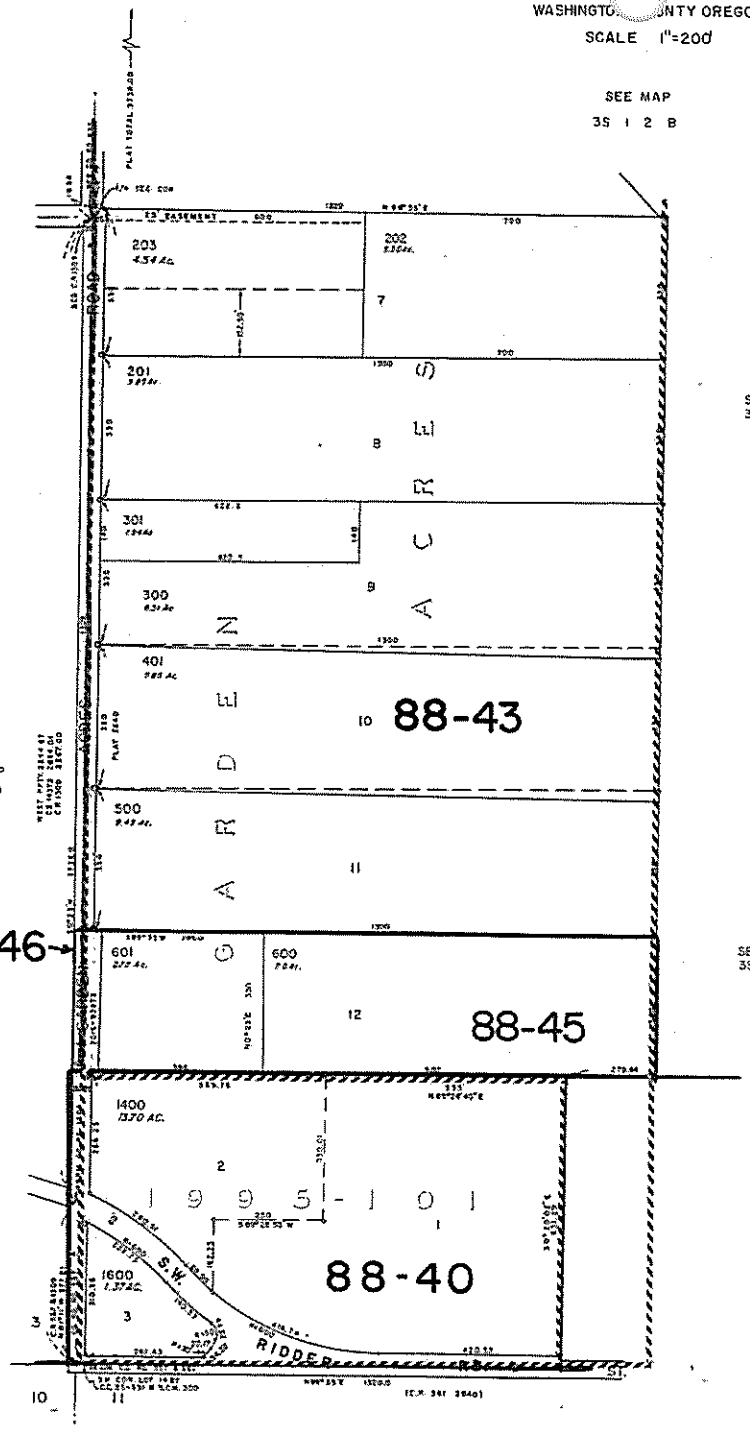
WASHINGTO NTY OREGON

SCALE 1"=200'

3S 1 2

SEE MAP
3S 1 2 B

CANCELLED TAX LOTS
101, 102, 150, 200, 1000, 1100, 1200, 1300, 1400, 1700, 1800, 1801, 1900, 2000, 2100, 2200



SEE MAP
3S 1 3D

88-46

SEE MAP
3S 1 2CA

SEE MAP
3S 1 2CD

CLACKAMAS CO.

WILSONVILLE
3S 1 2C

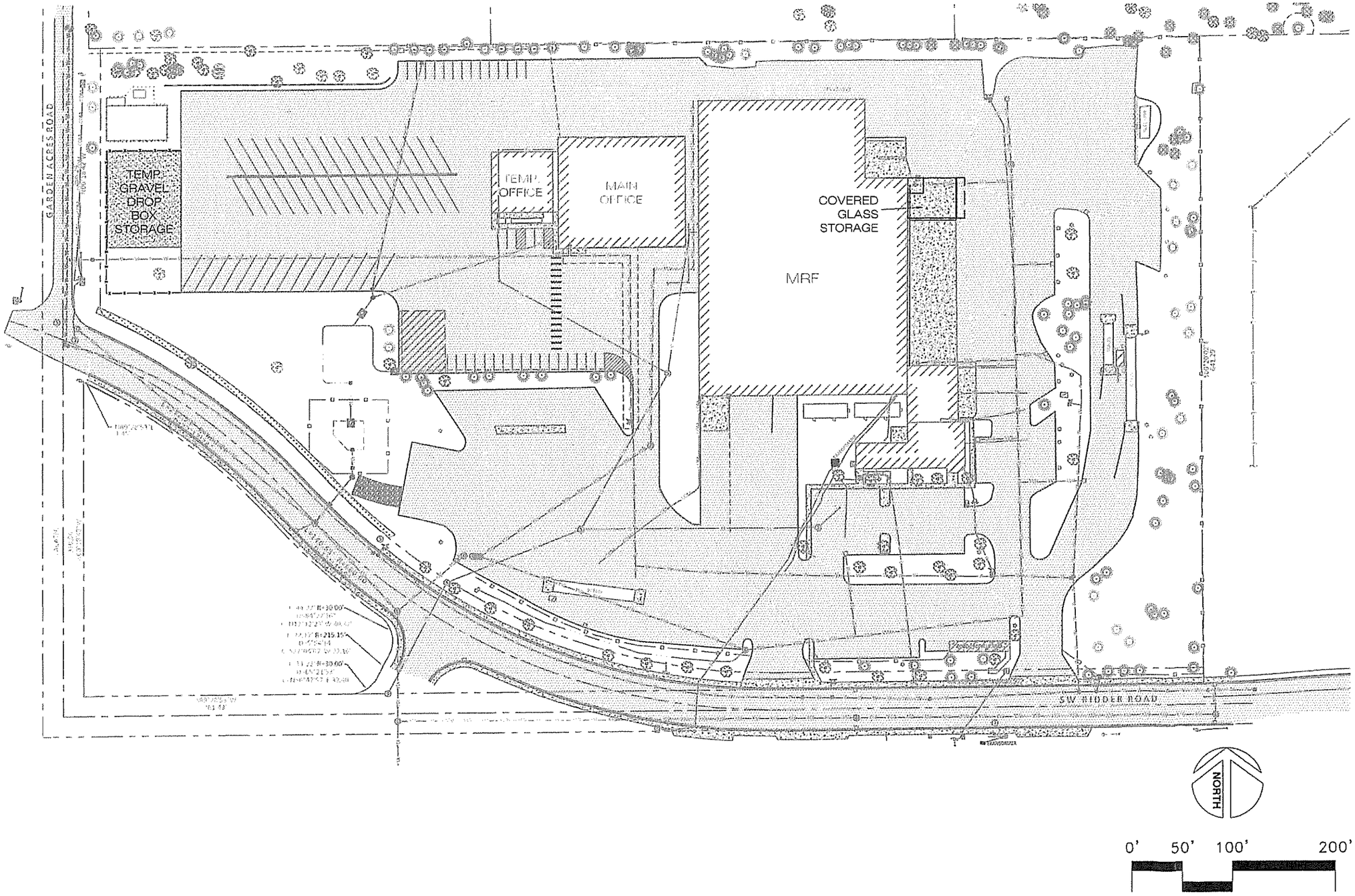
Preliminary Plan Set

COVERED GLASS STORAGE

TEMP BOX STORAGE

PROPOSED SITE IMPROVEMENTS

REPUBLIC SERVICES



PIONEER DESIGN GROUP, INC.
9020 SW WASHINGTON SQUARE RD.
SUITE 170
PORTLAND, OREGON 97223
p 503.643.8286
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www.pd-grp.com

Designed by	BA	Date	09/17
Drawn by	TCC	Date	09/17
Reviewed by	BA	Date	09/17
Project No.	999-158b	REF.	
Horiz. Scale:	1"=100'		
Vert. Scale:			

Project
REPUBLIC SERVICES

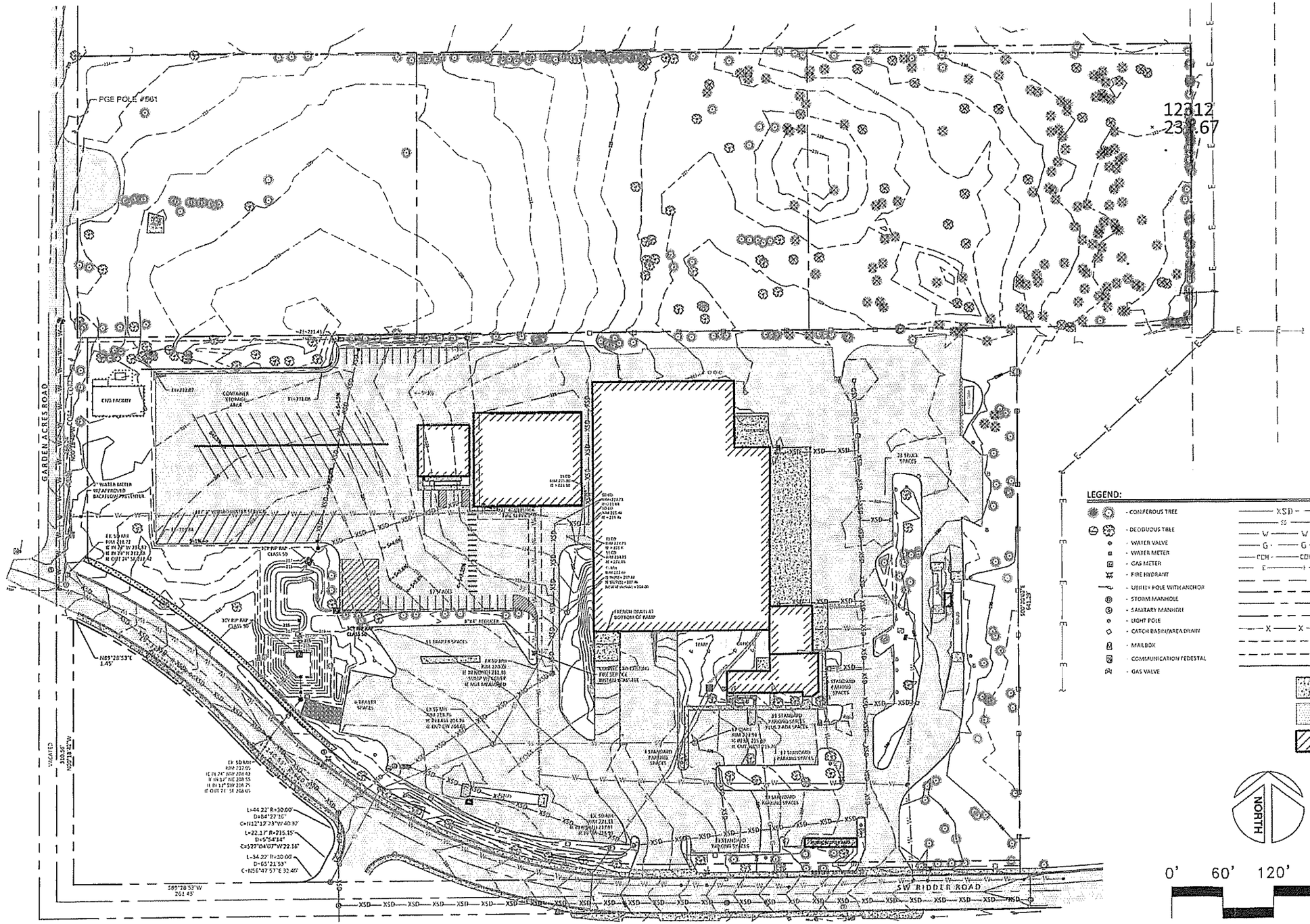
No.
999-158b

Type
PLANNING

Sheet
1 of 6

EXISTING CONDITIONS

REPUBLIC SERVICES



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Designed by	BA	Date 09/17
Drawn by	TCC	Date 09/17
Reviewed by	BA	Date 09/17
Project No.	999-158b	REF.
Horiz. Scale:	1"=120'	
Vert. Scale:		

Project
REPUBLIC SERVICES

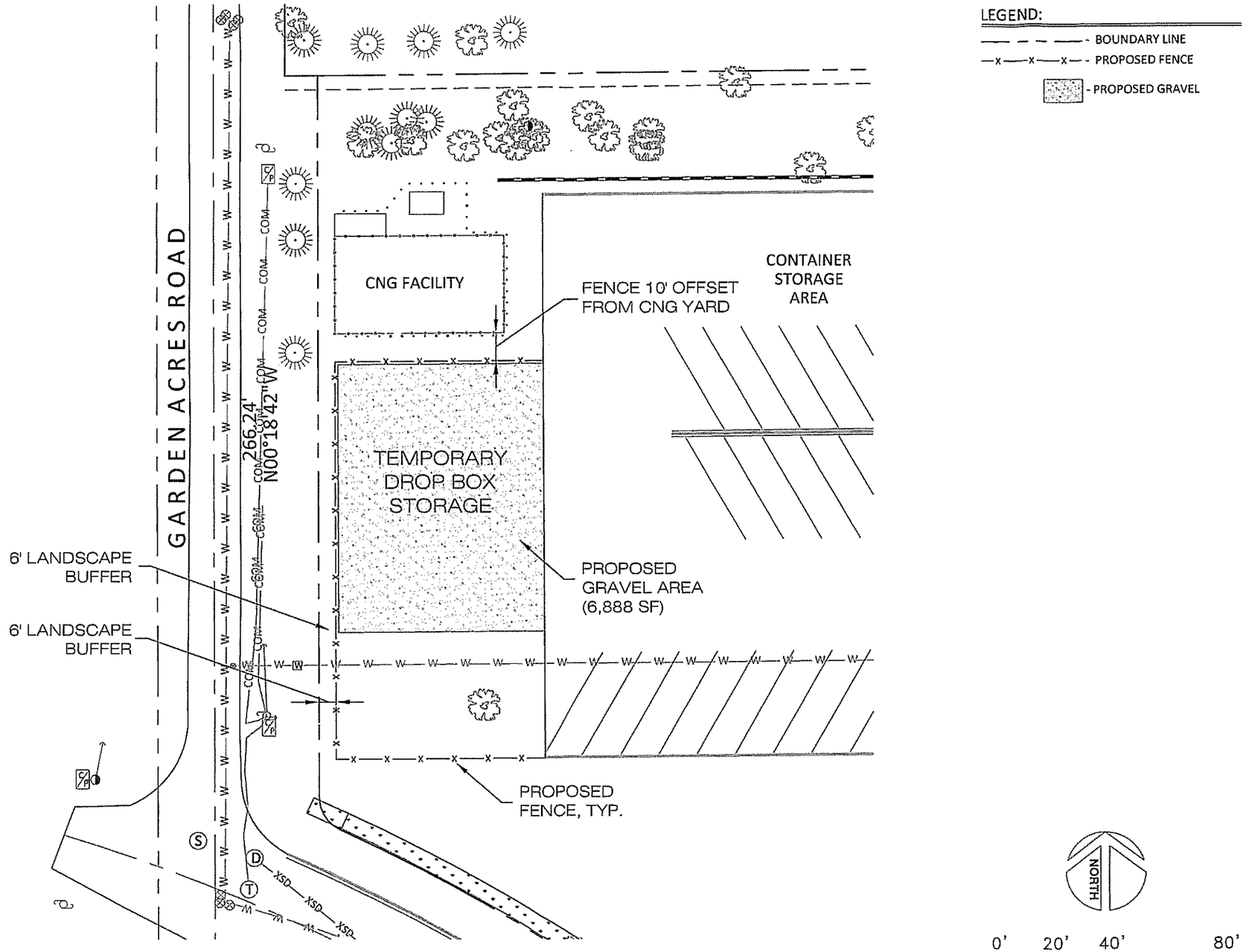
No.
999-158b

Type
PLANNING

Sheet
2 of 6

TEMPORARY DROP BOX STORAGE SITE PLAN

REPUBLIC SERVICES



LEGEND:

- BOUNDARY LINE
- PROPOSED FENCE
- PROPOSED GRAVEL

NORTH

0' 20' 40' 80'

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Designed by	BA	Date	09/17
Drawn by	TCC	Date	09/17
Reviewed by	BA	Date	09/17
Project No.	999-158b	REF.	
Horiz. Scale:	1"=40'		
Vert. Scale:			

Project
REPUBLIC SERVICES

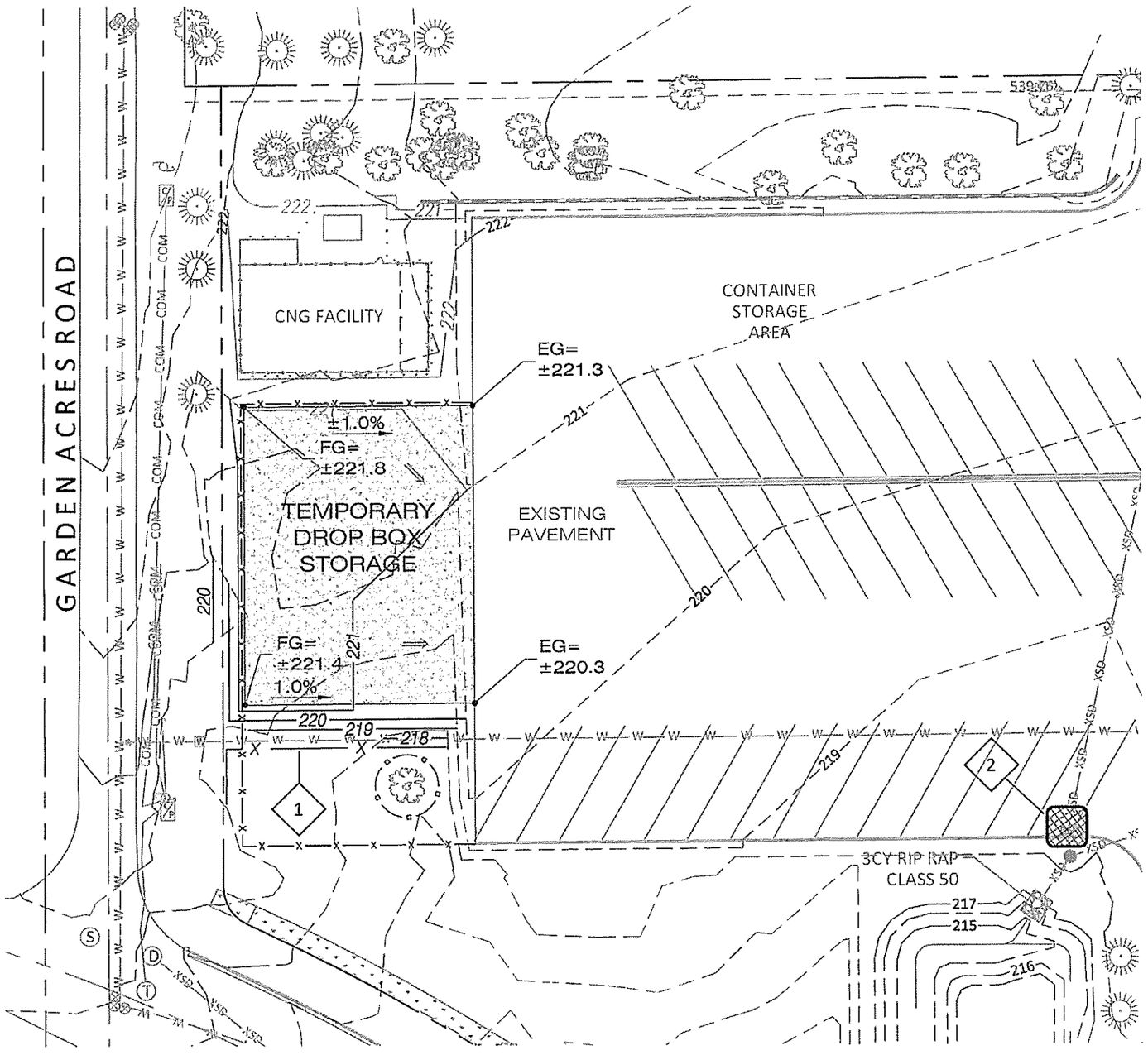
No.
999-158b

Type
PLANNING

Sheet
4 of 6

TEMPORARY DROP BOX STORAGE GRADING PLAN

REPUBLIC SERVICES



LEGEND:

- 181 — EXISTING 1' CONTOUR
- 180 — EXISTING 5' CONTOUR
- 181 — PROPOSED 1' CONTOUR
- 180 — PROPOSED 5' CONTOUR
- EXISTING TREE TO BE SAVED
- TREE PROTECTION FENCE (6' CHAINLINK)
- PROPOSED DRAINAGE PATTERN
- X — PROPOSED SILTFENCE
- TYPE 5 INLET PROTECTION

GRADING NOTES:

1. INSTALL TEMPORARY SEDIMENT FENCE.
2. INSTALL INLET PROTECTION TYPE 5.

NORTH

0' 20' 40' 80'

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9020 SW WASHINGTON SQUARE RD.
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Designed by	BA	Date	09/17
Drawn by	TCC	Date	09/17
Reviewed by	BA	Date	09/17
Project No.	999-158b	REF.	
Horiz. Scale:	1"=40'		
Vert. Scale:			

Project
REPUBLIC SERVICES

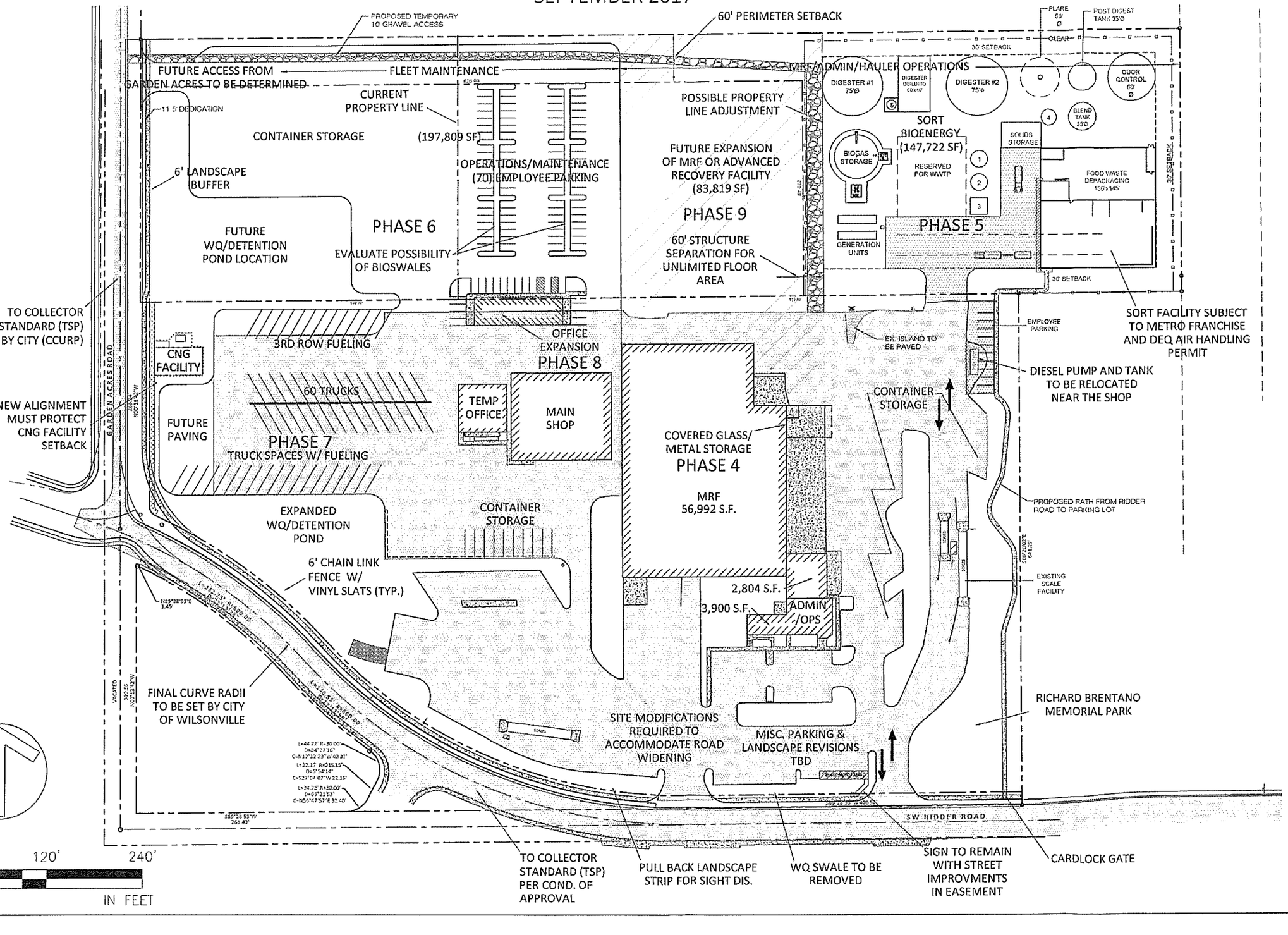
No.
999-158b

Type
PLANNING

Sheet
5 of 6

MASTER PLAN - STAGE I

SEPTEMBER 2017



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Designed by	BA	09/17
Drawn by	TCC	09/17
Reviewed by	BA	09/17
Project No.	999-158b	REF.
Horiz. Scale:	1"=120'	
Vert. Scale:		

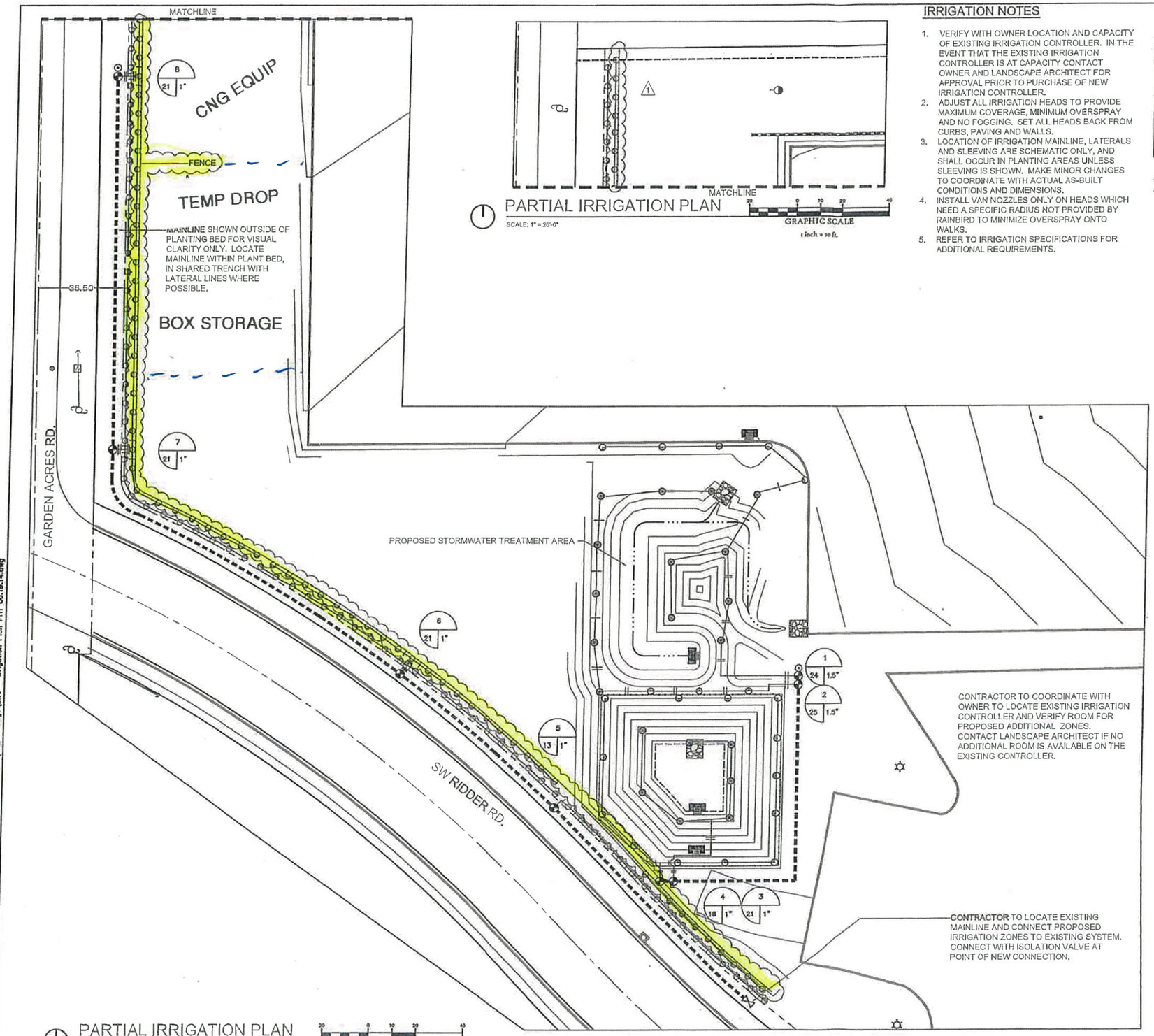
999158b_05mstr.dwg

Project
REPUBLIC SERVICES

No.
999-158b

Type
PLANNING

Sheet
6 of 6



PARTIAL IRRIGATION PLAN
SCALE: 1" = 20'-0"
GRAPHIC SCALE
1 inch = 20 ft.

PARTIAL IRRIGATION PLAN
SCALE: 1" = 20'-0"
GRAPHIC SCALE
1 inch = 20 ft.

IRRIGATION NOTES

1. VERIFY WITH OWNER LOCATION AND CAPACITY OF EXISTING IRRIGATION CONTROLLER. IN THE EVENT THAT THE EXISTING IRRIGATION CONTROLLER IS AT CAPACITY CONTACT OWNER AND LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO PURCHASE OF NEW IRRIGATION CONTROLLER.
2. ADJUST ALL IRRIGATION HEADS TO PROVIDE MAXIMUM COVERAGE, MINIMUM OVERSPRAY AND NO FOGGING. SET ALL HEADS BACK FROM CURBS, PAVING AND WALLS.
3. LOCATION OF IRRIGATION MAINLINE, LATERALS AND SLEEVING ARE SCHEMATIC ONLY, AND SHALL OCCUR IN PLANTING AREAS UNLESS SLEEVING IS SHOWN. MAKE MINOR CHANGES TO COORDINATE WITH ACTUAL AS-BUILT CONDITIONS AND DIMENSIONS.
4. INSTALL VAN NOZZLES ONLY ON HEADS WHICH NEED A SPECIFIC RADIUS NOT PROVIDED BY RAINBIRD TO MINIMIZE OVERSPRAY ONTO WALKS.
5. REFER TO IRRIGATION SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

SIZE LATERAL LINES ACCORDING TO THE FOLLOWING SCHEDULE:

LATERAL LINE SIZING CHART
CLASS 200

GPM	SYMBOL	SIZE
0-10		3/4"
10-17		1"
17-27		1 1/4"
27-36		1 1/2"
36-56		2"
56-83		2 1/2"

ZONE SUMMARY

ZONE NUMBER	GPM	VALVE SIZE
1	24	1-1/2"
2	25	1-1/2"
3	21	1"
4	18	1"
5	13	1"
6	21	1"
7	21	1"
8	21	1"

IRRIGATION LEGEND

- SHUT-OFF VALVE
- QUICK COUPLING VALVE (RAINBIRD or APPROVED EQUAL)
- DRAIN VALVE
- GATE VALVE
- RAINBIRD PESB-PRS-D, REMOTE CONTROL VALVE SEE PLAN FOR SIZES
- 1-1/2" SCHEDULE 40 MAIN LINE
- CLASS 200 PVC LATERAL LINE - SIZE PER SIZING CHART
- 3" CLASS 200 PVC SLEEVE

1L — STATION NUMBER
36 — VALVE SIZE
1.5" — GPM

SPRAY HEAD LEGEND

	MODEL #	DESCRIPTION	OPTIMAL OPERATING PRESSURE
ALL SPRAYHEADS TO BE INSERTED ONTO RAINBIRD 1806 POPUPS			
180	180	RAINBIRD 8 U-SERIES	30 PSI
90	90	RAINBIRD R17-24 SERIES	30 PSI
120	120		
180	180		
240	240		
270	270		
360	360		

NOTE: ALL COMPONENTS SPECIFIED HERE ARE ONLY SUGGESTED COMPONENTS AND MAY BE REPLACED WITH AN APPROVED SUBSTITUTION.

TYPE II REVISED APPROVED

MACDONALD
ENVIRONMENTAL PLANNING, PC
PORTLAND, OR 97233
PH: 503-329-0330 • WWW.MACP-PC.COM

SFA Design Group, LLC
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IRRIGATION PLANS
NOTES & LEGENDS
REPUBLIC SERVICES
WILSONVILLE, OREGON

REGISTERED
204
LAUREL A. MACDONALD
OREGON
LANDSCAPE ARCHITECT

NO.	DATE	REVISION	BY
1	10.07.14	Condition of Approval	

DESIGNED BY BDH DATE 6/19/14
DRAWN BY BDH DATE 6/19/14
REVIEWED BY LMB DATE 6/19/14
PROJECT NO. 999-158 REF.
SCALE 1"=20' L2.0 - Planting Plan.dwg

SHEET 15 OF 15

PROJECT REPUBLIC
NO. 999-158
TYPE LANDSCAPE

stellon2, Plotted: Oct 07, 2014 - 8:48am, H:\2014\324105_Republic Services\07_Drawings\L1.0 - Irrigation Plan PH1 06.19.14.dwg

27.23' TO EDGE OF EXISTING PAVING

6' LANDSCAPE BUFFER

PROPERTY LINE

NEW 6' CHAIN LINK FENCE W/ VINYL SLATS. INSTALL FENCE AT BACK SIDE OF 6' WIDE LANDSCAPE BUFFER.

36.50' TO ROAD CENTERLINE

GARDEN ACRES RD.

EXISTING SITE UTILITIES

PROPOSED STORMWATER TREATMENT AREA - 11,020 S.F.
EVERGREEN TREES 3 PER1000 S.F @ (6' HT.) = 33
DECIDUOUS TREES 2 PER 1000 S.F @ (1-1.5" CAL.) = 22
SHRUBS 30/1000 S.F @ 1GAL. = 330
WETLAND PLANTS 1 PER 2 S.F @ 660 S.F = 340 PLUGS

EXISTING DECIDUOUS TREE TO BE REMOVED, TYP

6' LANDSCAPE BUFFER

PROPERTY LINE

SIDEWALK

6' CHAIN LINK FENCE W/ SLATS

SW RIDDER RD.

EXISTING DECIDUOUS TREE TO REMAIN TYP.

EXISTING EVERGREEN TREE TO REMAIN TYP.

NOTES FOR PROPOSED TREE PLANTING:

1) CONTRACTOR TO EVALUATE EXISTING IRRIGATION AND ENSURE PROPER COVERAGE FOR PROPOSED TREES IN EXISTING PLANTER ISLANDS.

2) CONTRACTOR TO FIELD LOCATE PROPOSED TREES IN EXISTING LANDSCAPE BED OPEN AREAS WHERE EXISTING TREES WILL NOT IMPEDE PROPER GROWTH.

LIGHT TYP.

EXISTING EVERGREEN TR TO BE REMOVED, TYP.

SEE SHEET L2.1 (16B) FOR PLANT LEGEND AND NOTES

MATCHLINE SHEET L2.1

GRAPHIC SCALE 20 0 10 20 40

PARTIAL PLANTING PLAN

SCALE: 1" = 20'-0"

TYPE II REVISED APPROVED

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PARTIAL PLANTING PLAN
REPUBLIC SERVICES
WILSONVILLE, OREGON

REGISTERED LANDSCAPE ARCHITECT
LAUREL A. MACDONALD
OREGON
204

NO.	DATE	REVISION	BY
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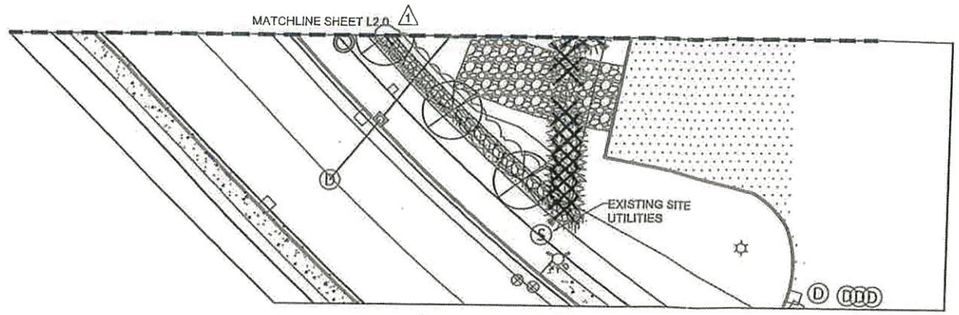
REVIEWED BY LMB DATE 6/19/14
PROJECT NO. 999-158 REF.
SCALE 1"=20'
L2.0 - Planting Planting

SHEET 16 OF 16

PROJECT REPUBLIC
NO. 999-158
TYPE LANDSCAPE

station2, Plotted: Oct [illegible] 2014 - 8:57am, H:\2014\324105_Republic Services\07_Drawings\L2.0 - Planting Plan PH1 06.18.14.dwg



PARTIAL PLANTING PLAN

SCALE: 1" = 20'-0"

GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 inch = 20 ft.

LANDSCAPE NOTES

1. REMOVE OR SPRAY AS REQUIRED TO ERADICATE INVASIVE/ NON-NATIVE AND/OR NOXIOUS WEED PLANTS AND ROOTS, INCLUDING JOHNSON GRASS, CRABGRASS, MORNING GLORY, RUSH GRASS, CANADIAN THISTLE AND BLACK BERRY VINES. KILL ACHIEVED BY WORKING THE SOIL IS PERMISSIBLE.

2. PREPARE NEW PLANT BED AREA BY REMOVING ANY REMAINING PLANT ROOTS AND NON-SOILS INCLUDING ASPHALT, PACKED GRAVEL, STONES, DEAD OR DISEASED SHRUBS, STUMPS AND LITTER.

3. TILL SOIL IN ALL PLANTING AREAS TO A DEPTH OF 12 INCHES. PLACE 4 INCHES OF TOPSOIL AND A MINIMUM OF 2 INCHES OF COMPOST MULCH IN ALL PLANT BEDS. TILL INTO SOIL TO A MINIMUM OF 12 INCHES.

4. COMPACT PREPARED SOIL MIX AND FLOAT TO PROVIDE PROPER DRAINAGE. SLOPE PLANTING AREAS WITH A 6-INCH CROWN OR 2" MINIMUM SLOPE, UNLESS OTHERWISE INDICATED ON DRAWINGS.

5. IRRIGATION SHALL BE PROVIDED BY AUTOMATIC, UNDERGROUND SYSTEM. CONTRACTOR TO COORDINATE WITH OWNER'S REPRESENTATIVE TO TIE IN TO EXISTING SYSTEM.

6. ALL LANDSCAPING SHALL BE INSTALLED ACCORDING TO ACCEPTED BEST INDUSTRY STANDARDS FOR PLANTING PROCEDURES.

7. PLANT MATERIALS SHALL BE OF HIGH GRADE, AND SHALL MEET THE QUALITY AND SIZE STANDARDS FOR NURSERY STOCK. PLANTS SHALL HAVE VIGOROUS ROOT SYSTEMS, AND BE SOUND, HEALTHY AND FREE FROM DEFECTS AND DISEASES.

8. PLANTINGS SHALL BE INSTALLED BETWEEN FEBRUARY 1st AND MAY 1st OR BETWEEN OCTOBER 1st AND NOVEMBER 15th.

9. PLANTINGS SHALL BE MULCHED TO A MINIMUM DEPTH OF 3 INCHES AND 18 INCHES IN DIAMETER.

1

10. FENCING SHALL BE 6' GALVANIZED STEEL CHAIN LINK WITH VINYL SLATS. INSTALL FENCE ALONG BACKSIDE OF LANDSCAPE BUFFER, PER SECTION 4.176.02.E.2 OF THE WILSONVILLE DEVELOPMENT CODE.
   a. MANUFACTURER: SUPERIOR FENCE, 503-760-7725
   b. 6' ROUND GALVANIZED STEEL POSTS W/ TOP RAIL, DIAMETER TO MATCH EXISTING
   c. GALVANIZED STEEL CHAIN LINK FABRIC MESH: SIZE, SELVAGE AND GAUGE TO MATCH EXISTING
   d. SLATS: PEXCO PDS® HDPE BOTTOM LOCK SLATS, SIZE TO FIT FENCE, COLOR: ROYAL BLUE
   e. INSTALL ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND GUIDELINES.

TREE REMOVAL/ REPLACEMENT NOTES

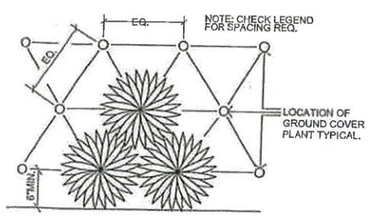
1. EXISTING TREES TO BE REMOVED/ REPLACED IN PLAN:

NATIVE TREES REMOVED	16 /16
NON-NATIVE TREES	3 / 3
DISEASE, DAMAGE, NUISANCE, OR HAZARD TREES	6 / 0
MITIGATION TREES IN PLAN	20

2. SHADE TREES FOR MITIGATION 2

3. REPLACEMENT TREES SHALL BE STAKED, FERTILIZED AND MULCHED, AND SHALL BE GUARANTEED BY OWNER OR THE OWNER'S SUCCESSOR IN INTEREST FOR 2 YEARS AFTER PLANTING DATE PER WC 4.620.00.

4. ALL EXISTING TREES ONSITE WHICH ARE NOT INDICATED AS BEING REMOVED SHALL BE PROTECTED IN ACCORDANCE WITH WC 4.620.10.



GROUNDCOVER PLANTING DETAIL

SCALE: NTS

MACDONALD
ENVIRONMENTAL PLANNING, PC
PORTLAND, OR 97223
PH: 503-224-9553 · WWW.EMDPC.COM

PLANT LEGEND

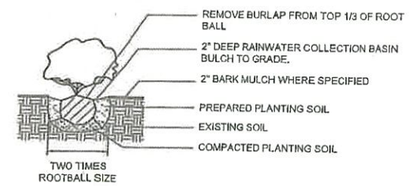
MITIGATION TREES (22) NAME	QTY.	SIZE	TYPE
ACER RUBRUM 'FRANKSRED' Red Sunset Maple	2	2" CAL.	B&B
FRAXINUS LATIFOLIA Oregon Ash	4	2" CAL.	B&B
PSEUDOTSUGA MENZIESII Douglas Fir	5	2" CAL. 8' HT. MIN.	B&B
THUJA PLICATA Western Red Cedar	11	2" CAL. 8' HT. MIN.	B&B

TREES NAME	QTY.	SIZE	TYPE
ACER RUBRUM 'KARPICK' Karpick Maple	9	2" CAL.	B&B
LIQUIDAMBAR STYRACIFLUA 'WORPLESDON' Worplesdon Sweetgum	12	2" CAL.	B&B

SHRUBS NAME	QTY.	SIZE	TYPE
PHYSOCARPUS OPULIFOLIUS 'SEWARD' Summer Wine Bark	28	7 GAL.	B&B
EUONYMUS ALATUS COMPACTUS Dwarf Burning Bush	42	5 GAL.	CONTAINER
PRUNUS LAURO. 'SCHIPKAENISIS' Skip Cherry Laurel	74	3-4' HT.	B&B

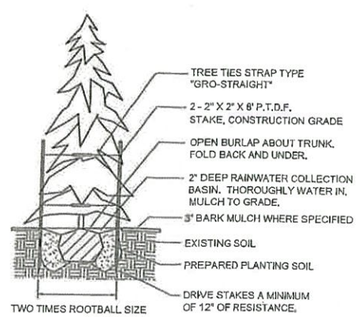
GROUND COVERS & PERENNIALS	QTY.	SIZE	SPACING
AJUGA REPTANS Bugle Weed	EST	1 GAL	24"O.C.
ARCHTOSTAPHYLOS UVA URSI Kinnickinnick	572	1 GAL.	24"O.C.

WATER QUALITY FACILITY	QTY.	SIZE	TYPE
STORM WATER PLANTING AREA	11,020 S.F.		
EVERGREEN TREES	33	6' HT.	B&B
DECIDUOUS TREES	22	1-1.5" CAL.	B&B
SHRUBS	330	1 GAL.	CONTAINER
WETLAND PLANTS	340		PLUGS



SHRUB PLANTING DETAIL

SCALE: NTS



TREE PLANTING DETAIL

SCALE: NTS

TYPE II REVISED APPROVED

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PARTIAL PLANTING PLAN, LEGEND, NOTES & DETAILS
REPUBLIC SERVICES
WILSONVILLE, OREGON

REGISTERED LANDSCAPE ARCHITECT
OREGON
LAUREL A. MACDONALD
2314

NO.	DATE	REVISION	BY
1	10.07.14	Condition of Approval	

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SHEET 16B OF 16

PROJECT REPUBLIC
NO. 999-158
TYPE LANDSCAPE

station2, Plotted: Oct 07, 2014 - 9:00am, H:\2014\224105_Republic Services\07_Drawings\L2.0 - Planting Plan PH1 06.18.14.dwg

DEVELOPMENT REVIEW BOARD MEETING

MONDAY, OCTOBER 23, 2017
6:30 PM

VII. Board Member Communications:

A. Recent City Council Action Minutes

City Council Meeting Action Minutes
September 18, 2017

COUNCILORS	STAFF	STAFF
Mayor Knapp	Bryan Cosgrove	Mark Ottenad
Councilor Starr	Barbara Jacobson	Angela Handran
Councilor Akervall	Kimberly Veliz	Melissa Gitt
Councilor Stevens	Dwight Brashear	Chris Neamtzu
Councilor Lehan - Absent	Susan Cole	Mike Ward
	Nancy Kraushaar	Steve Adams
	Delora Kerber	Daniel Pauly

AGENDA ITEM	ACTIONS
WORK SESSION	
A. CIP 4196 – 5th to Kinsman Extension Update (Adams)	Staff provided Council with four bridge options requesting that Council give direction on which option to move forward with in the process. At Council's direction staff will bring back modified bridge options for review.
B. Understanding the SMART Rider (Brashear/Hendrix)	At the direction of Council staff will Staff provided a presentation which included the data from recent surveys completed by riders.
C. URA - Tooze Road Professional Services Contract (Ward)	A brief synopsis of the purpose of the resolution was presented. The item will be addressed under New Business.
REGULAR MEETING	
<u>Communications</u> A. TVF&R: State of the District	Michael Duyck, Chief of Tualatin Valley Fire & Rescue (TVF&R) presented on the following: objectives, incident response, medic units, specialized paramedics, verified responders, recruitment, partnership update, and a list of what is on the horizon.
B. Oregon Building Inspector of the Year Award	Building Official Director Dan Carlson honored Melissa Gitt for receiving the prestigious 2017 Building Inspector of the Year award from the Oregon Building Officials Association (OBOA).

Mayor's Business A. Upcoming Meetings	Upcoming meetings were announced by the Mayor as well as the regional meetings he attended on behalf of the City.
Public Hearing A. **Resolution No. 2654** A Resolution Authorizing A Supplemental Budget Adjustment For Fiscal Year 2017-18.	After a public hearing was conducted, Resolutions No. 2654 was adopted 4-0.
Continuing Business A. **Ordinance No. 808 - 2nd Reading** An Ordinance Of The City Of Wilsonville Regarding Street Lighting: Types; Infill; Rates; Billing; And Fund; Amending Wilsonville Code Sections 3.200 Through 3.204; And Repealing Ordinance Nos. 41 And 304 B. **Ordinance No. 809 - 2nd Reading** An Ordinance Of The City Of Wilsonville Revising Section 201.9.01 - Roadway And Intersection Lighting Of The City Of Wilsonville Public Works Standards – 2015 And Adding Drawings To The Public Works Standard Detail Drawing - 2014	Ordinance No. 808 was adopted on second reading by a vote of 4-0. Ordinance No. 809 was adopted on second reading by a vote of 4-0.
City Manager's Business A. Community Development B. Library C. Parks and Recreation D. Police Department E. Public Works F. SMART	
Legal Business	No report.
ADJOURN	8:29 p.m.

City Council Meeting Action Minutes
October 2, 2017

COUNCILORS	STAFF	STAFF
Mayor Knapp	Bryan Cosgrove	Mark Ottenad
Councilor Starr	Barbara Jacobson	Angela Handran
Councilor Akervall	Jeanna Troha	Mike McCarty
Councilor Stevens	Kimberly Veliz	Chris Neamtzu
Councilor Lehan	Robert Wurpes	Tod Blankenship
	Nancy Kraushaar	Daniel Pauly
	Delora Kerber	Kerry Rappold

AGENDA ITEM	ACTIONS
WORK SESSION	
A. Old Town Single Family Design Standards (Pauly)	Staff and consultant shared draft design guidelines for the Old Town Neighborhood and the code language that planning staff is developing to allow ministerial staff review for new single-family homes (including duplexes) and accessory buildings, including but not limited to accessory dwelling units, in Old Town.
B. CIP 9132 – Memorial Park Dog Park/Community Garden Parking Lot (Rappold/Blankenship)	Staff provided Council an update on potential access improvements to the Kolbe Lane, Schroeder Way, and Wilsonville Road for the proposed Memorial Park Dog Park/Community Garden parking lot project.
C. CIP 4196 - 5th to Kinsman (Kraushaar)	Staff followed up with bridge options on the Kinsman project. After discussion it was decided that staff would research other options to bring back to Council.
REGULAR MEETING	
<u>Communications</u> A. Introduction of new Chief of Police Robert Wurpes (item added before motion to approve agenda)	Chief Wurpes and his family were introduced to Council.
B. Blue Zone (Handran)	Sarah Foster Executive Director, Oregon Healthiest State(OHS) / Oregon Business Council provided a presentation on the Blue Zones Project (BZP). Presentation topics included the benefits of the BZP and the phases for a city to establish the program in their community.

Mayor's Business A. Upcoming Meetings	Upcoming meetings were announced by the Mayor as well as the regional meetings he attended on behalf of the City.
Consent Agenda A. Minutes of the August 7, 2017, August 24, 2017, September 7, 2017 and September 18, 2017 Council Meetings.	The Consent Agenda was adopted 5-0.
City Manager's Business	No report.
Legal Business A. Call Up and Remand of DRB-B of DB17-0008 through DB17-0010 (Site Modifications – 9600 SW Boeckman Rd, Relocation of DW Fritz) (item added before motion to approve agenda).	Motion was made to call up and remand back to the DRB the matter of DB17-0008 through DB17-0010 which is site modifications for relocation of DW Fritz. Motion carried 5-0.
ADJOURN	8:32 p.m.