City of West Linn
Planning & Development • 22500 Salamo Rd #1000 • West Linn, Oregon 97068
Telephone 503.656-3535 • westlinnoregon.gov

DEVELOPMENT REVIEW APPLICATION

For Office Use Only		
STAFF CONTACT: Chris Myers	PROJECT NO(S).: CUP-25-03/DR-25-03	PRE-APPLICATION NO.: PA-25-06
NON-REFUNDABLE FEE(S): $500 + $500	REFUNDABLE DEPOSIT(S): $4,500 + $4,500	TOTAL: $10,000

Type of Review (Please check all that apply):

- ☐ Annexation (ANX)
- ☐ Appeal (AP)
- ☐ CDC Amendment (CDC)
- ☐ Code Interpretation (MISC)
- ☑ Conditional Use (CUP)
- ☑ Design Review (DR)
- ☐ Tree Easement Vacation (MISC)
- ☐ Expediated Land Division (ELD)
- ☐ Extension of Approval (EXT)
- ☐ Final Plat (FP) Related File #_____
- ☐ Flood Management Area (FMA)
- ☐ Historic Review (HDR)
- ☐ Lot Line Adjustment (LLA)
- ☐ Minor Partition (MIP)
- ☐ Modification of Approval (MOD)
- ☐ Non-Conforming Lots, Uses & Structures
- ☐ Planned Unit Development (PUD)
- ☐ Street Vacation
- ☐ Subdivision (SUB)
- ☐ Temporary Uses (MISC)
- ☐ Time Extension (EXT)
- ☐ Right of Way Vacation (VAC)
- ☐ Variance (VAR)
- ☐ Water Resource Area Protection/Single Lot (WAP)
- ☐ Water Resource Area Protection/Wetland (WAP)
- ☐ Willamette & Tualatin River Greenway (WRG)
- ☐ Zone Change (ZC)

Pre-Application, Home Occupation, Sidewalk Use, Addressing, and Sign applications require different forms, available on the website.

Site Location/Address: 18850 Willamette Drive, West Linn, OR

Assessor's Map No.: 21E14DD

Tax Lot(s): 21E14DD06900

Total Land Area: 1.294 Acres, 56,378 sf

Brief Description of Proposal:

A 3,190 sf, One Story, 17'-8" high new automated car wash, with vacuum stations with associated parking stalls.
This building is replacing an existing McDonald's restaurant. The hours of operation are from 8:00 AM to 8:00 PM.
The building is Type VB Construction, and Occupancy Group B. Car maintenance facilities are allowed under a Conditional Use Permit from the City of West Linn.

Applicant Name*: Eric Li, TVA Architects
Address: 1750 SW Yamhill, Suite 150
City State Zip: Portland, OR 97205
Phone: 503.924.6321
Email: eeykelbosch@froelich-engineers.com

Owner Name (required): Chuck Kaady
Address: 2545 SW Spring Garden Street, Suite 200
City State Zip: Portland, OR, 97219
Phone: 503.924.6321
Email: eeykelbosch@froelich-engineers.com

Consultant Name: Evan Eykelbosch, Froelich Engineers
Address: 17700 SW Upper Boones Ferry Road, suite 115
City State Zip: Portland, OR 97224
Phone: 503.924.6321
Email: eeykelbosch@froelich-engineers.com

1. Application fees are non-refundable (excluding deposit). Applications with deposits will be billed monthly for time and materials above the initial deposit. ***The applicant is financially responsible for all application costs.**
2. All information provided with the application is considered a public record and subject to disclosure.
3. The owner/applicant or their representative should attend all public hearings related to the application.
4. A decision may be reversed on appeal. The decision will become effective once the appeal period has expired.
5. Submit this form, application narrative, and all supporting documents as a single PDF through the web page: https://westlinnoregon.gov/planning/submit-land-use-application.

The undersigned property owner authorizes the application and grants city staff the right of entry onto the property to review the application. The applicant and owner affirm that the information provided in this application is true and correct. Applications with deposits will be billed monthly for time and materials incurred above the initial deposit. The applicant agrees to pay additional billable charges.

Applicant's signature — Date: 07/23/2025

Owner's signature ***(required)*** — Date: 8-1-2025

DEVELOPMENT REVIEW CHECKLIST

The application form and supporting materials should be submitted electronically through https://westlinnoregon.gov/planning/submit-land-use-application **as one (1) .pdf file**. To create a single PDF file, go to Adobe Acrobat Free Merge PDF online tool. Other free Acrobat PDF tools like converting a file to PDF or reducing the file size are available on the Adobe website.

Supporting reports may be uploaded separately through this web form *if* the file size is too large. The separate submissions should be numbered (i.e., Submittal 1 of 2) and noted under transmittal contents. All plan set files MUST be flattened and reduced.

Submission requirement to upload through the web form:

- .pdf format.
- Individual file size no larger than 128 MB.
- Do not attach 'zip' files. Our server will reject all 'zip' files.
- Reduce and flatten all plan sets BEFORE uploading plan sets. The raster/vector settings should be optimized for printing.

A complete application must include the following:

- ☑ Development Review Application. Original signatures from all owners must be on the application form. **Do NOT use DocuSign.**
- ☑ A **project narrative** outlining the project's scope in detail, including the changes to the site, structure, landscaping, parking, land use, and lot consolidations.
- ☐ Complete written responses to identified approval criteria in the Community Development Code (CDC).
- ☐ A Service Provider Letter from Tualatin Valley Fire and Rescue - https://www.tvfr.com/399/Service-Provider-Permit Please contact Jason Arn at jason.arn@tvfr.com with any questions about TVF&R requirements.
- ☐ Vicinity Map showing the site within the City.
- ☐ Site Plan drawn to scale showing the:
    - Taxlot and address of the project,
    - Area of the site (acres or square feet),
    - Zoning and Neighborhood Association,
    - Location and dimensions of existing and proposed buildings, structures,
    - Location of existing and proposed on-site driveways and off-street parking,
    - Configuration and dimensions of all existing and proposed lots and tracts, including a proposed park, open space, and or drainage tracts or easements,
    - Location and width of existing and proposed easement for access, drainage, etc., and
    - Location of existing and proposed trees and other proposed landscaping.
    - Location of existing public and private utilities, easements, and 100-year floodplain,
    - Sensitive areas, including the location of on-site wetlands and riparian areas,
    - Location of existing off-site driveways across the street,
    - If applicable, internal circulation system, name, and location of existing and proposed roadways and roadway easements (private and public), and
    - Location and width of existing and proposed on-site pedestrian and bicycle facilities on-site.
- ☐ If applicable, a Utility Plan and Landscape plan, drawn to scale.
- ☐ If applicable, Building elevation drawings with exterior elevations for every side of each structure, height including building materials and floor levels, drawn to scale.
- ☐ If required, documentation of any required meeting with the respective City-recognized neighborhood association per CDC 99.038.
- ☐ Any other materials identified by city staff at the pre-application meeting.

For applications that the Planning Commission decides, the applicant or applicant's representative should present their proposal to the PC at the public hearing.

Date:	July 31, 2025
Project Name:	Kaady Car Wash West Linn
Project No:	24041
Re:	Type II Design Review Application

CONDITIONAL USE AND TYPE II DESIGN REVIEW APPLICATION AND WRITTEN RESPONSES FOR 18550 Willamette Drive, Tax Lot 21E14DD06900 Per Chapters 55 and 60 of the City of West Linn Community Development Code

APPLICATION NARRATIVE

The Kaady Car Wash is a one-story, 3,190-sf building that is 17'-8" high and has 280 sf of auxiliary buildings (Ticket Booth and Vacuum Shed), for a total of 3,470 sf of leasable space. It is replacing a 3,948-sf McDonald's restaurant with drive-through service. The building type is considered an automobile cleansing facility per 2.a. in 19.060 Conditional Uses, which allows the use in this zone subject to the provisions of Chapter 60 of the CDC, Conditional Uses.

Kaady Car Wash is a locally owned franchise of automotive cleaning facilities that have used state-of-the-art car wash technology for the residents of the Portland Metropolitan area since 1977. Kaady Car Washes are better for the cars, the environment, and for all that cars go through. Business operations run daily from 8 AM to 8 PM. Similar facilities have recently been developed on West Burnside in Portland and along TV Highway in Hillsboro.

There are no public restroom facilities within the scope of this work. An accessible staff restroom is available for the use of car wash employees.

Building Construction Type and Occupancy:
The construction type is VB, and the occupancy group is B. The building is non-separated.
The Car Wash has an occupancy of 12, and each of the two ticket stations has an occupancy of 1.
The allowable area is 9,000 sf without sprinklers, per Table 504.3. COMPLIANT
The allowable building height is 40'-0" without sprinklers per Table 504.3. COMPLIANT

For Type VB Construction, Class B Occupancy, No Sprinklers:
OSSC Table 504.3 allowable building height is 40'-0" COMPLIANT
OSSC Table 504.4 allows for two allowable stories. COMPLIANT
OSSC Table 506.2 allowable area is 9,000 s.f. COMPLIANT

A precedent for a car wash conditional use exists with the operation of United Car Wash, located at 19303 Willamette Drive, West Linn.

tva architects, inc.
1750 sw yamhill street | suite 150 | portland, oregon 97205
phone: 503 220 0668 | www.tvaarchitects.com

Robert Thompson, FAIA | Tim Wybenga, LEED AP | Pamela Saftler, AIA, IIDA | Mandy Butler, AIA, LEED AP, CSI CDT

Existing Easement:

There is an existing Reciprocal Ingress and Egress Easement on the site, Document No 96-058137 amended by Document 98-051836, that provides access to the shopping mall on the lot adjacent to the north. This easement remains. The existing lot entries remain unchanged.

Existing landscaping and Planting:

None of the street trees on the site are documented or included in the City of West Linn Street Tree Inventory Map. One street tree located off Walling Way may need to be modified to accommodate the upgrade of the water service line, but the rest of the street trees are to remain. There is a masonry existing site retaining wall that is approximately 8'-0" on the east side of the lot that provides a visual and acoustic buffer to the adjacent residential zone. On the east side of the wall is a vegetated water treatment swale that we will keep, upgrade, and maintain. Interior lot landscaping will be demolished and replaced as shown on the site plan with City-compliant small trees.

Pre-Application Conference

TVA and Chuck Kaady met with Chris Myers with the City of West Linn Planning Department for a Pre-Application conference on March 8, 2025. See attached Summary Notes.

The key issues from the meeting were that:

1. The design team needed to meet with the Robinwood Neighborhood Association and to provide an audio recording of the meeting.
2. The applicant must have a TVF&R Provider Permit as part of the application
3. There is an existing ingress/egress easement on the property, which must be maintained unless legally changed with all property owners agreeing.

TVFR Provider Permit

A Tualatin Valley Fire and Rescue Provider Permit has been submitted and approved by TVFR, and is included as part of this application.

Historical Preservation:

This is not a historical condition subject to review from the Historic Review Board.

Neighborhood Association Meeting

TVA attended the Robinwood Neighborhood Association meeting at the Robinwood Station Community Center on June 8, 2025, at 7:00 PM. Also in attendance were the Vice President, Tony Bracco, and the Secretary/Treasurer, Kevin Bryck. The Association President, Michelle Greenberg, was invited, but did not attend. Our presentation lasted about an hour, where we fielded questions and concerns from the community. A complete audio documentation of the event was taken and is submitted with this application.

Included in this Application, per the requirements of 99.038, Neighborhood Contact Required for Certain Applications:

- The letter of invitation to all neighbors within 500 feet of the property. (as required by
- The list of all of the neighborhood residents within 500 feet of the project, as identified by Chicago Title.
- Certified verification of the mailings to the officers of the Neighborhood Association, both with receipts and an affidavit of mailing.
- A copy of the signage used on the property for notification of the meeting.

The major points of concern from the audience were traffic, noise, and wetland issues.
The Applicant acknowledges the concerns of the neighborhood community and addresses these elements in this application narrative:

- Water Resource Area Protection Chapter 32,
- Privacy and Noise 55.100D,
- Traffic 55.125

Design Documents:
The attached documents have been provided as part of this Conditional Use Application:
The required drawings have been provided in PDF format, in both full-size (30x42) and 11x17 formats. These Documents are required by 55.070 Submittal Requirements

- A site plan A0.01
- Building Elevations A4.01 and A4.02
- Grading Plan
- Site Utility Plan
- Photographs of the Existing McDonald's Site (with Neighborhood Notification Sign)
- Photographs of the Portland, West Burnside Kaady Car Wash, completed in 2024, which is the basis of the design for this project.
- Photographic proof of the acoustic testing of the Burnside Site.
- A Light Coverage Plan

CHAPTER 19 GENERAL COMMERCIAL (GC) ZONE REQUIREMENTS

19.020 PROCEDURES AND APPROVAL PROCESSES

- The approval of a conditional use is discretionary with the Planning Commission, the process and criteria for approval set forth in Chapter 60 of the City of West Linn Community Development Code.

19.060 CONDITIONAL USES

- Automotive and equipment cleaning uses are allowed as a conditional use. A Conditional Use Permit will be applied for under the requirements listed in Chapter 60 of the West Linn Community Development Plan. (See below for more information.)

19.070 DIMENSIONAL REQUIREMENTS

- Minimum front lot line length shall be 35 feet. COMPLIANT
- Minimum lot width shall be 50 feet. COMPLIANT
- Minimum lot depth shall not be less than 90 feet. COMPLIANT
- The maximum lot coverage shall be 50 percent. COMPLIANT
- Maximum building height shall be two and one-half stories or 35 feet for any structure located 50 feet or more from a low or medium-density residential zone. COMPLIANT
- For lot lines that abut an arterial, there shall be no minimum yard dimensions or minimum building setback area, and the maximum building line shall consist of landscaping or a combination of non-vehicular hardscape areas and landscaped areas. COMPLIANT

CHAPTER 32 WATER RESOURCE AREA PROTECTION

- Per the West Linn Water Resource Area Map, Fern Creek runs as an underground pipe segment below the property and is piped out at the west property line. Fern Creek, upon emerging on the other side of the property line becomes a significant riparian corridor.
- The projected water resource area of the riparian corridor on this property is where the stormwater treatment pond is. The water resource itself (Fern Creek) is outside of the property lines of this project.
- There is no construction in this area of the site. Per Table 32-1, stormwater treatment facilities are allowed in a Water Resource Area.
- There are no wetland conditions on this property identified in the Water Resource Inventory.

CHAPTER 42 CLEAR VISION AREA

- The Owner will trim and maintain the street tree canopy 8'-0" and below at the corner of Willamette Drive and Walling Way to provide the clear vision area 30'-0" from the intersection as required per 42.020. There are to be no visual obstructions (walls, fences, or planting) provided at this intersection as part of this scope of work.

CHAPTER 44 FENCES

- No new fences are being provided in this cope of work.
- There is an existing CMU retaining wall on the east side of the east drive exit that will remain. This retaining wall is 6'-8" max. and does not abut a street. Most of this wall is 40" max above grade. This wall is not within a front yard setback area.

CHAPTER 46 OFF-STREET PARKING, LOADING, AND RESERVOIR AREAS

- The traffic flow reverses through the car wash, and vehicles can either exit back onto Willamette Drive or use the self-servicing vacuum spaces in a lot to the north of the car wash. The vacuum stalls are generously sized at 10'-0" wide x 18'-0" deep, and the total number of parking spaces is 17.

- Note that the vacuum stations are for active cleaning use and are not intended as medium or long-term parking spaces.
- Per the Off-Street Parking Requirements table 46.090, the maximum number of parking spaces is 5 per 1000 sf of leasable building, using "other commercial uses" as the Land Use criteria.
- 3.47 x 5 = 17.35 parking spaces maximum allowed. COMPLIANT
- The Reservoir Requirement for drive-in uses for mechanical car washes requires 3 spaces/washing unit, and 5 spaces for attendant ticket dispensing. This facility has a reservoir area of 6 cars from the car wash to the ticket station and 18 cars from the ticket station to the driveway entrance. ODOT has reviewed the site plan submitted for the Pre-Application Conference.
- The building does not exceed the threshold for Commercial Buildings at which a loading space berth is required. (10,000 sf). Per 46.130.
- All exterior lighting for this facility will be concealed or shielded for compliance with 46.150 Design Standard 13.
- This facility is compliant with the maximum allowable 12 parking spaces in a row as required by 46.150 Standard 19.
- One accessible parking space is required. One is provided.
- This facility is compliant with all of the conditions listed in 46.150 Design and Improvement Standards for non-residential parking.
- Two bicycle spaces are required or .33 spaces per 1000 gross sf (.33 x 4=1.32), whichever is greater, for auto-oriented services. Two are provided.
- This facility provides less than one-half acre of parking (7,548 sq. ft.), so it is not required to provide shade trees at the parking area.

CHAPTER 48 ACCESS, EGRESS, AND CIRCULATION

- This project is compliant with the conditions required in Chapter 48.
- A traffic impact analysis has not been requested by the City as a condition of the Pre-Application meeting. The State Department of Transportation is reviewing the Pre-Application documents.
- The two existing site access driveways remain, and no new driveways are being added. The driveway off of Willamette Drive (40'-0 wide) is both ingress and egress. The Owner is considering whether the driveway on Walling Way (37'-0" wide) will be used for Egress only or both ingress and egress. It was explained to the design team that it could be either condition.
- There is an existing reciprocal ingress and egress easement that is to remain along the west boundary of the site. See the Site Plan for additional easement information. Documents 96-058137 and 98-051836 are on record with the City of West Linn.
- A portion of the site utilizes one-way traffic to direct customers through the drive-through mechanical car wash. The vacuum station stalls are served by a two-way drive aisle. The Owner is considering utilizing the SW exit off of Walling way as an exit only driveway to control the traffic queue for the car wash.

CHAPTER 52 SIGNS

- Permanent monument signs and building-mounted signage are permitted on this property and will be submitted under a separate permit, conforming to 52.101 Signage Procedures and Approval Process to ensure compliance with Chapter 52 in full.
- Anticipated signage includes a building mounted sign and a pole mounted sign.

CHAPTER 54 LANDSCAPING

- All existing street trees along Willamette Drive and Walling Way are to be retained. The new drive access aisle follows the same profile as the existing curb line of the McDonald's site, protecting the existing root systems. The existing cedar trees along the east property line behind the masonry retaining wall remain. There are small existing deciduous trees (with a diameter of less than 12 inches at chest height) within parking islands and peninsulas that are being removed as part of this scope.
- One exception: There may be a need to remove or provide protection for a tree that has grown its root system around the existing water meter, which is being upsized for the car wash use.
- The existing street trees will be trimmed to conform to the Clear Vision Area requirements stated in Chapter 42.
- Per chapter 54.020, Parking lots with 10 to 20 parking spaces shall have a minimum of five percent of the interior devoted to landscaping. The perimeter landscaping is not to be included in this five percent. There shall be one shade tree planted for every eight parking spaces. For seventeen parking spaces, three trees are required, and four are proposed in this scope of work.
- Per the Pre-Application meeting review from the City of West Linn, the quantity of landscaping provided by the street trees as proposed in this site plan satisfies the criteria of Chapter 54
- The existing stormwater treatment containment pool and surrounding landscaping will be maintained, cleared of blackberries, and improved as necessary for water treatment and retention.

CHAPTER 55 DESIGN REVIEW

This project does not fall under any of the project types listed for CLASS I Design Review. Therefore, a new major commercial construction project is subject to a Class II Design Review. The project has executed the Pre-Application conference required by 55.030.

55.100 APPROVAL STANDARDS – CLASS II DESIGN REVIEW GENERAL/DISCRETIONARY

RELATIONSHIP TO THE NATURAL ENVIRONMENT

- No heritage trees are dedicated in the City of West Linn Street Tree Inventory Map on this site.
- The topography and natural drainage shall be preserved to the greatest degree possible. This project will utilize the existing stormwater treatment facility in the SW corner of the site, where the natural drainage of the site currently flows.

- There are no steep slopes on this site that are subject to slumping and sliding.

ARCHITECTURE

- The architectural character of this building is in character and scale with the other buildings in this neighborhood. A precedent for car washes exists nearby, with United Car Wash located at 19303 Willamette Dr. (approximately five blocks away). Drive-through businesses are common along Willamette Drive. Chevron, Starbucks, Burgerville, Castrol, and Wells Fargo all have drive-through operations along Willamette Dr. within five blocks of this site.
- The building that Kaady Car Wash will be replacing is a McDonald's drive-through restaurant, so the vehicular-oriented character has a precedent for this site.
- The size and shape of this building is consistent with the commercial buildings along Willamette Drive.
- Willamette Drive is an arterial highway (HWY 43) and does not support a pedestrian commercial environment. Walling Way is a local roadway that, due to previous right-of-way improvements, does not require additional frontage Improvements at the property location, according to the West Linn Department of Transportation.
- There are no public entrances to this facility. The public does not enter the building, except to run their cars through the wash. The main street and transit entrance proximity requirements do not apply.
- The car wash has been set back from the property lines, with the existing street trees and site retaining wall acting as an acoustic buffer to neighboring properties. These dimensions are to the property lines. Existing neighboring buildings are located at a minimum of 100 feet away.
    - South Buffer 71'-1"
    - West Buffer 54'-5"
    - North Buffer 53'-3"
    - East Buffer 113'-8"
- The mechanical equipment on top of the car wash has a 3'-8" high ribbed metal panel roof screen, masking HVAC equipment from view. See attached exterior elevations
- A4.01 and A4.02.We will be seeking an exception for the 60 percent glazing of the building due to its use as a car wash. There are windows provided for the Car Wash staff, but most of the building enclosure is for the car wash, for which windows are not needed.

PRIVACY AND NOISE (55.100.D)

Applicable Sections:
3. Structures or on-site activity areas that generate noise, lights, or glare shall be buffered from adjoining residential uses in accordance with the standards in subsection C of this section, where applicable.
4. Businesses or activities that can reasonably be expected to generate noise in excess of the noise standards contained in West Linn Municipal Code Section 5.487 shall undertake and submit appropriate noise studies and mitigate as necessary to comply with the code. (See

CDC 55.110(B)(11) and 55.120(M).) If the decision-making authority reasonably believes a proposed use may generate noise exceeding the standards specified in the municipal code, then the authority may require the applicant to supply professional noise studies from time to time during the user's first year of operation to monitor compliance with City standards and permit requirements."

Design response:

- West Linn Municipal Code 5.487 Sound Levels and Noise prohibits noise between 9:00 PM and 7:00 AM. Kaady Car Wash's daily operations begin at 8:00 AM and ends at 8:00 PM, making the facility compliant.
- Chuck Kaady took decibel reading from the Burnside site, with cars going through the wash. These readings were taken at 8:00 AM on June 16.
    - 42 feet from car wash entry: 72 dB.
    - 50 feet from exit on the sidewalk on Burnside Street: 70db – 80 db
- This noise level is considered moderate, below the threshold for causing hearing damage. This noise is also intermittent, and is a "whooshing" noise rather than a banging noise.
- The Willamette Drive site is 123 feet from the east property line (opposite the wash entry), and 67'-0" from the entry is an 8'-0" high CMU retaining wall buffer. The slope drops away from the site, and on the other side of the retaining wall is a thicket of mixed blackberry and wetland plantings.
- From the exit to the sidewalk along Willamette Drive, the exit is 61'-8" minimum. The sidewalk is 8'-4" wide, and Willamette Drive is 80'-0" before you hit the opposite sidewalk. The property on the opposite side of Willamette Drive is a commercial property. The nearest residential property to the west is at least 350' away from the exit of the car wash, and the commercial buildings in Lot 18825 provide an acoustic buffer. Moreover, Willamette Drive will provide a more constant, and equivalent noise source (Louder for big trucks and motorcycles) than the car wash to the neighbors to the west.
- The distance offset from the car wash is considerably more than the acoustic readings that were taken from the new Burndside Kaady Car Wash, which is a new development, and is also using patented state-of-the art equipment that has been designed to be quieter.

TRAFFIC (55.125)

Section 55.125 states "Certain development proposals required that a **traffic impact analysis** (TIA) be provided which may result in modifications to the site plan or conditions of approval to address or minimize any adverse **impacts** created by the proposal. The purpose, applicability and standards of this **analysis** are found in CDC 85.170(B)(2). (Ord. 1584, 2008; Ord. 1745 § 1 (Exh. A), 2023)"

CDC 85.170 (B)(2) requires a TIA (no dwellings) under the following considerations:

The development application involves one or more of the following actions:

(A) A change in zoning or a plan amendment designation; or (NO)
(B) Any proposed development or land use action that ODOT states may have operational or safety concerns along a State highway; and (NO)
(C) The development shall cause one or more of the following effects, which can be determined by field counts, site observation, traffic impact analysis or study, field measurements, crash history, Institute of Transportation Engineers Trip Generation manual, and information and studies provided by the local reviewing jurisdiction and/or ODOT: (NO)

(1) An increase in site traffic volume generation by 250 average daily trips (ADT) or more (or as required by the City Engineer); or (Not requested by the city)
(2) An increase in use of adjacent streets by vehicles exceeding the 20,000 pound gross vehicle weights by 10 vehicles or more per day; or (NO)
(3) The location of the access driveway does not meet minimum intersection sight distance requirements, or is located where vehicles entering or leaving the property are restricted, or such vehicles queue or hesitate on the State highway, creating a safety hazard; or (NO)
(4) The location of the access driveway does not meet the access spacing standard of the roadway on which the driveway is located; or (NO)
(5) A change in internal traffic patterns that may cause safety problems, such as backup onto the highway or traffic crashes in the approach area. (Not with the modified queue reservoir configuration… ODOT)

As per our Pre-Application Meeting with Chris and the City Engineer, none of these criteria would trigger a TIA. The car wash will not generate an increase of 250 average daily trips more than a McDonald's drive-through restaurant. Additionally, we do not have any available traffic impact data from McDonald's.

CHAPTER 60: CONDITIONAL USE

Per Section 19.060, Automotive and Equipment Cleaning facilities are considered a conditional use. A Conditional Use Permit application has been submitted, and the associated Neighborhood Association Meeting was held on Tuesday, June 10, at the Robinwood Neighborhood Association Community Center. A recording of this meeting has been provided for the Conditional Use requirements.

The conditional use application includes a written narrative and a site plan describing the conditions stipulated in 60.070 Approval Standards and Conditions. This submittal includes information described in this application pursuant to Chapters 52 through 55 and section 92.010 of the Community Development Code.

The site is nominally level and mostly flat, with sufficient area and dimensions adequate to the proposed use. This is a commercial property within a General Commercial zone. (GC)
This site does not involve the removal or alteration of a historic resource.

SUITABILITY OF PUBLIC FACILITIES PER 60.070 APPROVAL STANDARDS

This proposed project meets the requirements of the Public Facilities standards, per review with the City Engineers through the Pre-Application conference from March 6, 2025.

SANITARY SEWER

- The Existing 8" sanitary main currently running along the partial frontages of the property of Walling Way, and the 8" main in the vicinity are large enough to handle the capacity from our development.
- As-built data shows that the McDonald's property utilizes a 4" sanitary lateral on Walling Way.
- A new 6" sanitary lateral is shown and will be provided if warranted.

DOMESTIC WATER

- The existing 6" domestic water main that runs across the frontages of the property on Walling Way currently serves a 1.5" meter.
- Our project proposes an upgrade to a 2" water meter for Car Wash needs. The city's water main can serve this new meter. This will require Systems Development Charges, which will be paid prior to the issuance of a Site Development Permit.
- A 2" reduced pressure backflow assembly (RPBA) will be provided to protect the water system.

TRANSPORTATION

- Willamette Drive is classified as a major arterial.
    - ODOT controls this right-of-way.
- Walling Way is classified as a local roadway, with 50 feet of right-of-way along the frontage of our proposed development lot.
    - The City is not requesting any additional ROW to be dedicated across the property frontage.
    - Due to previous ROW improvements along Walling Way, the City will not require any additional frontage improvements at this location.

STORMWATER

- This site and the adjacent strip mall are currently served by an existing water quality vault and retention pond. Due to the age of this system, it likely does not meet the current stormwater management requirements. Therefore, the project will be providing a new water quality treatment manhole and below grade detention system. Discharge from the flow control structure will tie into the existing site stormwater system.
    - The design team acknowledges that the City of West Linn is currently in the process of adopting a new stormwater management manual.

END CONDITIONAL USE AND DESIGN REVIEW NARRATIVE

Eric Li, Senior Associate, TVA Architects July 31, 2025

CITY OF WEST LINN
PRE-APPLICATION CONFERENCE MEETING
SUMMARY NOTES
March 6, 2025

SUBJECT: Proposed Car Wash.

FILE: PA-25-06

APPLICANTS PRESENT: Chuck Kaady, Eric Li

STAFF PRESENT: Chris Myers, Associate Planner

PUBLIC PRESENT:

These pre-application summary notes have been prepared for the applicant to identify applicable code sections and critical issues for the proposed application and summarize the application process and fees. Pre-Application summary notes are based on preliminary information and may not include all considerations. Contact the assigned planner for additional information regarding the process, approval criteria, submittal requirements, questions, and clarifications. Pre-Application Conference summary notes are valid for eighteen months from the meeting date. Once a complete application is submitted, the final decision can take 6-10 months.*

SITE INFORMATION:

Site Address:	18850 Willamette Drive
Tax Lot No.:	21E14DD06900
Site Area:	1.294 Acres
Neighborhood:	Robinwood NA
Comp. Plan:	Commercial
Zoning:	General Commercial
Zoning Overlays:	Riparian Corridor, Habitat Conservation Area

PROJECT DESCRIPTION:

The applicant proposes a Conditional Use Permit and a Class II Design Review for the construction of a car wash.

APPLICABLE COMMUNITY DEVELOPMENT CODE SECTIONS:

Approval standards and criteria in effect when an application is *received* will be applied to the proposed development. The following Community Development Code (CDC) Chapters apply to this proposal:

- Chapter 2: Definitions
- Chapter 19: General Commercial
  - 19.020 Procedures and Approval Process
  - 19.030 Permitted Uses
  - 19.060 Conditional Uses
  - 19.080 Dimensional Requirements, Conditional U
- Chapter 32: Water Resource Area Protection
  - 32.010 Purpose
  - 32.020 Applicability
- Chapter 42: Clear Vision Areas
  - 42.020 Clear Vision Areas Required
  - 42.040 Computation; Street and Accessway 24 Feet or More in Width
- Chapter 46: Off-Street Parking, Loading, and Reservoir Areas
  - 46.020 Applicability and General Provisions
  - 46.030 Submittal Requirements
  - 46.070 Maximum Distance Allowed Between Parking Area and Use

    - 46.090 Computation of Required Parking Spaces (Maximum)
    - 46.110 Reservoir Areas Required for Drive-in Uses (car wash is listed)
    - 46.150 Design and Improvement Standards
- Chapter 48: Access, Egress, and Circulation
    - 48.020 Applicability and General Provisions
    - 48.025 Access Control
    - 48.040 Minimum Vehicle Requirements for Non-Residential Uses
    - 48.050 One-Way Vehicular Access Points
    - 48.080 Bicycle and Pedestrian Circulation
- Chapter 52: Signs
    - 52.300 Permanent Sign Design Standards
- Chapter 54 Landscaping
    - 54.050 Protection of Street Trees
- Chapter 55: Design Review
    - 55.020 Classes of Design Review (Class II)
    - 55.070 Submittal Requirements
    - 55.100 Approval Standards – Class II Design Review – General Discretionary
    - 55.110 Site Analysis
    - 55.120 Site Plan
    - 55.125 Transportation Analysis
    - 55.140 Architectural Drawings
    - 55.150 Landscape Plan
- Chapter 60: Conditional Uses
    - 60.030 Administration and Approval Process
    - 60.070 Approval Standards and Conditions
    - 60.080 Site Plan and Map
- Chapter 99: Procedures for Decision Making: Quasi-Judicial
    - 99.030 Application Process
    - 99.038 Neighborhood Contact Required (Yes, CUP requires NA meeting)
    - 99.060 Approval Authority (Planning Commission)

KEY ISSUES & CONSIDERATIONS

Staff has identified the following development issues, design considerations, or procedural issues that you should be aware of as you prepare your formal application for submittal. The identification of these issues or considerations here does not preclude the future identification of additional issues or considerations:

1. Applicant must attend NA meeting AND provide an audio recording as part of the application.
2. Applicant must have a TVF&R Provider Permit as part of the application.
3. There is an existing ingress/egress easement on the property which must be maintained unless legally changed with all property owners agreeing (1998).

RESPONSE TO APPLICANT QUESTIONS:

Links to previous Design Review projects:
https://westlinnoregon.gov/projects/completed?term_node_tid_depth=All&field_project_type_tid=40&keys=

Master Fee Schedule:
https://westlinnoregon.gov/sites/default/files/fileattachments/finance/page/7989/mfc_-_fy_2025_effective_july_1_2024_clean_adopted_08.08.24_-_minor_wlrr_updates.pdf

A storm water report will be needed at the time of Development Review.

ENGINEERING:
The Engineering department comments are attached. For further details, contact Clark Ide at 503-722-3437 or Cide@westlinnoregon.gov.

BUILDING:
For building code and ADA questions, contact Adam Bernert at abernert@westlinnoregon.gov or 503-742-6054 or Alisha Bloomfield at abloomfield@westlinnoregon.gov or 503-742-6053.

TUALATIN VALLEY FIRE & RESCUE:
A Service Provider Permit must be provided with this application - https://www.tvfr.com/399/Service-Provider-Permit. Contact Jason Arn at jason.arn@tvfr.com or 503-259-1510 with any questions.

TREES:
For information on the tree requirements for this proposal, contact the Mike Perkins, City Arborist at mperkins@westlinnoregon.gov or 503-722-4728.

PROCESS:
A Conditional Use Permit and a Class II Design Review are a Planning Commission Decision. A public hearing is required. Once the application is declared complete, staff will review the application, send a 20-day public comment notice, and post a notice sign on the property. When the public comment period closes. A final decision can take 6-10 months.

There is a 14-day appeal period after the decision. If the decision is not appealed, the applicant may proceed with the development.

NEIGHBORHOOD MEETING:
A neighborhood meeting is required for a Conditional Use Permit and a Class II Design Review

HOW TO SUBMIT AN APPLICATION:
Submit a complete application in a single PDF document through the Submit a Land Use Application web portal. A complete application should include:

1. A development application;
2. Application materials identified in the Development Review Checklist.

COMPLIANCE NARRATIVE:
Written responses supported by substantial evidence must address all applicable approval standards and criteria. Written materials must explain how and why the proposed application will meet each applicable approval criteria. "Not Applicable" is not an acceptable response to the approval criteria.

Submittal requirements may be waived, but the applicant must first identify the specific submittal requirement and request, in writing, that the Planning Manager waive the requirement. The applicant must identify the specific grounds for the waiver. The Planning Manager will respond with a written determination about the waiver request before applying.

APPLICATION FEES & DEPOSITS:
The Planning Division Fee Schedule can be found on our website: https://westlinnoregon.gov/finance/current-fee-schedule

- Deposit for a CUP = $4500
  = $500 Inspection fee
- Deposit Class II Design Review = $4500

= $500

Applications with deposits will be billed monthly for time and materials. Please provide the name and address of the party responsible for the final invoice in your application.

Timelines:

Once the application and payment are received, the City has 30 days to determine if the application is complete. If the application is incomplete, the applicant has 180 days to complete it or provide written notice to staff that no other information will be provided. Once complete, the City has 120 days from the completeness determination to make a final decision on the application. Typical land use applications can take 6 months from beginning to end.

*** DISCLAIMER:** *These pre-application notes have been prepared per CDC Section 99.030.B.7. The information provided is an overview of the proposal considerations and requirements. Staff responses are based on limited material presented at the pre-application conference. New issues and requirements can emerge as the application is developed. Failure to provide information does not constitute a waiver of the applicable standards or requirements. The applicant has the burden of proof to demonstrate that all approval criteria have been satisfied. These notes do not constitute an endorsement of the proposed application or assure project approval.*

Pre-app Comments

Project Number: PA-25-06
Class 2 Commercial Design Review: 18850 Willamette Drive

Engineering Contact:

Jameson Lumpkin
jlumpkin@westlinnoregon.gov
Telephone: (503) 722-4739

Project Description: Proposed Car Wash

Pre-application meeting date: March 6, 2025

The comments provided below are based upon material provided as part of the pre-application packet and are intended to identify potential design challenges associated with the development. Comments are not intended to be exhaustive and do not preclude the engineering department from making additional comments as part of the formal land use application process.

TRANSPORTATION
Minimum Requirements:

- Willamette Drive
  - Willamette Drive is classified as a major arterial.
  - Oregon Department of Transportation (ODOT) controls this Right of Way.
- Walling Way
  - Walling Way is classified as a local roadway.
  - Walling Way has approx. 50 feet of ROW along the frontage of the proposed development lot. The City would not request any additional ROW be dedicated across the property frontage.
  - Due to previous ROW improvements to Walling Way, the City will require no additional frontage Improvements at the property location.

SANITARY SEWER
Minimum Required Improvement:

- Existing 8” mains currently run along the patrial frontages of the property on Walling Way. The 8” mains in the vicinity are large enough to handle the capacity from the proposed development.
- As-built data shows current commercial property utilizes 4” sanitary lateral on Walling Way.

DOMESTIC WATER
Minimum Required Improvement:

- Existing 6” DI water mains currently run along the frontages of the property on Walling Way
  - Existing property utilizes meter from this main.
- Building code will dictate the required meter size for this proposed development. Current meter size is 1.5”
- Developer inquired about upgrade to a 2” meter. City main has the capacity to serve this 2” meter upgrade.

CITY OF West Linn	**Pre-app Comments** **Project Number: PA-25-06** **Class 2 Commercial Design Review: 18850 Willamette Drive**	**Engineering Contact:** Jameson Lumpkin jlumpkin@westlinnoregon.gov Telephone: (503) 722-4739

SURFACE WATER (STORM SEWER)
Minimum Required Improvement:

- Onsite run-off generated from new impervious areas of greater than 1000 square feet must be captured, treated, detained and conveyed to the nearest public stormwater system in accordance with the *Portland Stormwater Management Manual,* the Uniform Plumbing Code, and *City of West Linn Public Works Standards*.
- Preferred stormwater management would be to capture, treat, and infiltrate on site. If infiltration is not feasible, conveyance to the City system would be required.
- All Stormwater facilities must be designed and accepted by a licensed engineer.
- Current property shows a stormwater facility on site. This facility may be used for this proposed development but a licensed engineer must prove the facility meets current stormwater requirements.

OTHER

- City is currently in the process of adopting a new stormwater management manual. If site development plans are submitted after this adoption, the new requirements will be enforced.
- Any required improvements shall be constructed to meet current City of West Linn Design Standards.
- Any required work in the ROW shall be constructed, inspected and accepted by the City.
- Development shall pay all applicable System Development Charges (SDC) fees prior to issuance of Site Development permit.
- The proposed development will disturb less than 5 acre, therefore a West Linn Erosion Control Permit Application, as outlined in Section 2.0065 of the *City of West Linn Public Works Standards,* will be required prior to the commencement of construction.

March 20, 2025

Chuck Kaady
Kaady Car Wash
Contact: ckaady@kaady.com
Phone: 503-246-7735

RE: ROBINWOOD NEIGHBORHOOD ASSOCIATION REVIEW MEETING FOR A NEW KAADY CARWASH: 18850 WILLAMETTE DRIVE

Attn: Michelle Goldberg, president of the Robinwood Neighborhood Association

I, Chuck Kaady, am writing as the Owner of Kaady Car Wash regarding the property located at 18850 Willamette Drive, West Linn, OR 97068. We are proposing a new automated car wash facility with supplemental self-serve vacuum cleaning stations. This facility will replace an existing former McDonald's drive-through restaurant. See the attached proposed site plan in the Pre-Application presentation .pdf for reference.

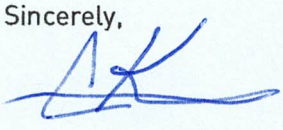
Before applying to the City of West Linn for a Conditional Use Permit, we would like to discuss the project in greater detail with you and the Robinwood Neighborhood Association and receive your comments as required by the Community Development Code section 60.060. The purpose of this informational meeting is to provide a forum for us and the surrounding property owners and residents to review the proposal and to identify issues so that they may be considered before a land development application is submitted to the City of West Linn.

This meeting provides you with the opportunity to share any special information you know about the property involved. We endeavor to answer any questions you may have regarding Kaady Car Wash and the proposed design. Please provide a time and place for us to arrange a meeting with you and the Association.

We are open to either an in-person meeting at a location of your choosing, or a ZOOM/TEAMS meeting per your preference.

If you have any questions for us, you can reach me at ckaady@kaady.com, or Eric Li, the project architect, Eric Li, ericl@tvaarchitects.com

Sincerely,



Chuck Kaady

ROBINWOOD NEIGHBORHOOD ASSOCIATION

June Meeting Agenda

7:00 pm, June 8th, 2025. Robinwood Station

Zoom meeting:

https://us05web.zoom.us/j/83286322408?pwd=GCoY3SrlCqejtO8FUXBO5810tzMYk1.1

Meeting ID: 832 8632 2408 *Passcode:* jb4ywY

1. Call to Order. Introduction of new attendees.

2. Agenda Approval. May Minutes Approval

3. Treasurer's Report

4. Presentation from Eric Li from TVA Architects: New Kaady carwash to be constructed at former McDonalds location on Walling and 43 requires a zoning variance.

6. Presentation about Restoration Project at 3955 Cedaroak Dr.

7. Announcements, City and Community Events

8. Old Business

- Budget Committee update.
- Ole Olsen regarding Kenthorpe infill project.
- Formation of the "Robinwood Good Neighbor Committee"

9. New Business

- Picnic Committee volunteers sought for planning August 23rd event.
- Replacement of RNA President pending

10. Adjournment

AFFIDAVIT OF MAILING

STATE OF OREGON
COUNTY OF MULTNOMAH

I, Eric Li, being duty sworn, depose and say that on 05/09/ 2025, I caused to have mailed to Michelle Goldberg, the President of the Robinwood Neighborhood Association, and to a designated recipient of the Neighborhood Associations' request, a notice of a mailing to discuss a proposed development at 18850 Willamette Drive, West Linn, Oregon, 97068. A copy of which has been attached hereto and made a part hereof.

Chicago Title has provided a list of all neighbors within 500 feet of the proposed work, and each of these property owners is receiving a notification of a pending meeting by United States Post. See attached list of neighborhood recipients.

I further state that said notices were enclosed in envelopes plainly addressed to said persons and were deposited on the date indicated above in the United States Post Office with postage prepaid, therein.

This MAY 9, 2025

Signed

Eric Li, Senior Associate
TVA Architects

Subscribed and sworn in, or affirmed before me this 9 day of May 2025

Notary Public for the State of Oregon

My Commission Expires Aug 16 2027

OFFICIAL STAMP
CORY JOE TOWNSEND
NOTARY PUBLIC - OREGON
COMMISSION NO. 1039934
MY COMMISSION EXPIRES AUGUST 16, 2027

tva architects, inc.
1750 sw yamhill street | suite 150 | portland, oregon 97205
phone: 503 220 0668 | www.tvaarchitects.com

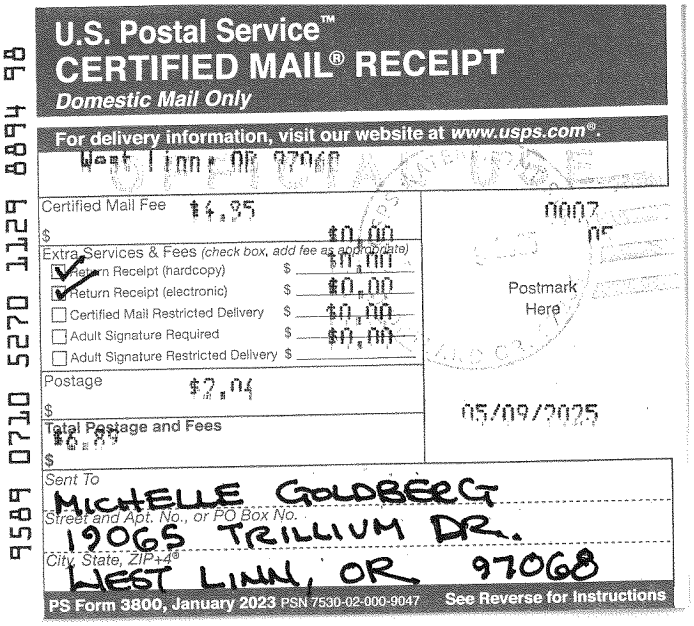
Robert Thompson, FAIA | Tim Wyberga, LEED AP | Pamela Sattler, AIA, IIDA | Mandy Butler, AIA, LEED AP, CSI CDT

NOTIFICATION OF PROPOSED DEVELOPMENT FOR CONDITIONAL USE PERMIT

18850 WILLAMETTE DRIVE
WEST LINN, OREGON 97068

The proposal is for the removal of the existing McDonald's drive-through restaurant, to be replaced with a new Kaady Car Wash. A neighborhood meeting has been scheduled to take place at the Robinwood Station Community Center, 37068 Cedar Oak Drive, at 7:00 PM on Tuesday, June 10. The public is invited to attend to discuss the proposal with the Applicant and Designer of the proposed project.

For additional information about this development you may contact:
Chuck Kaady, Developer: 503.793.1100, ckaady@kaady.com
Eric Li, Project Architect, TVA Architects: 971.678.7578, ericl@tvaarchitects.com



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WEST LINN, OR 97068

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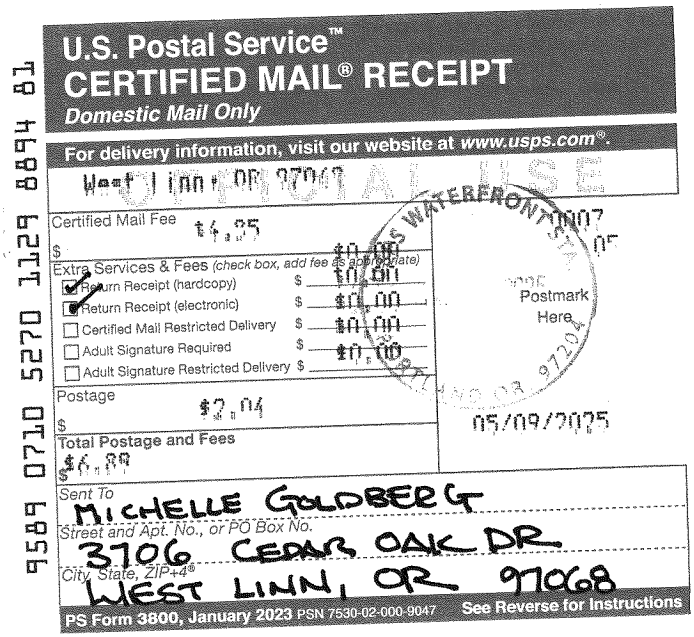

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Street and Apt. No., or PO Box No.
3706 CEDAR OAK DR.
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WEST LINN, OR 97068

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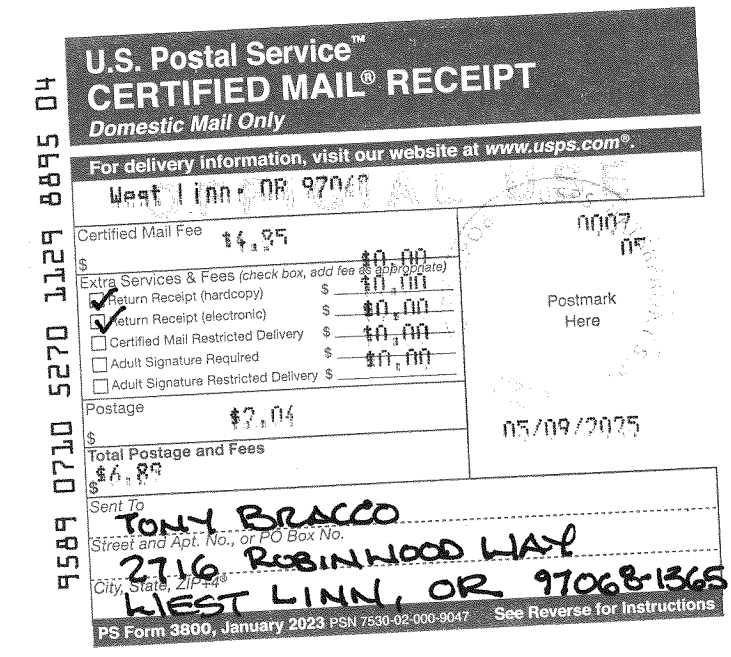

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TONY BRACCO
Street and Apt. No., or PO Box No.
2716 ROBINHOOD WAY
City, State, ZIP+4®
WEST LINN, OR 97068-1365

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

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21E13CC05300
David Sims
3499 Walling Way
West Linn, OR 97068-1544

21E13CC05500
Brent & Sarah Hunsberger
3536 Walling Way
West Linn, OR 97068-1546

21E13CC05600
Nancy Rowinski
3424 Walling Way
West Linn, OR 97068-1535

21E13CC05700
Roxanna Khosravi
19625 Old River Dr
West Linn, OR 97068-1639

21E14DC07501
Scott Hillson
19461 View Dr
West Linn, OR 97068-1339

21E14DC07600
Edward & Janet Gerbasi
19489 View Dr
West Linn, OR 97068-1339

21E14DC07601
Eleanor Jones
19477 View Dr
West Linn, OR 97068-1339

21E14DC07700
Rickey Hug & Billie Janette
1152 Troon Rd
Lake Oswego, OR 97034

21E14DC08000 & 08001
David & Karen Clary
19535 View Dr
West Linn, OR 97068-1341

21E14DC08100
Overlook Dc LLC
18676 Willamette Dr
West Linn, OR 97068-1718

21E14DD01500
Zack & Monica Lorts
2245 Snead Dr
Lake Havasu City, AZ 86406-7667

21E14DD01908
Forrest Faubion
18527 Rose Ct
West Linn, OR 97068-1131

21E14DD01909
Andrew Chitty & Aniko Becsei
3275 Fairview Way
West Linn, OR 97068-1549

21E14DD01912
Robert Nevarez
18534 Rose Ct
West Linn, OR 97068-1129

21E14DD02200
David & Judy Robison
18490 Vista Ct
West Linn, OR 97068-1141

21E14DD02300
Alice Seeger
18530 Vista Ct
West Linn, OR 97068-1130

21E14DD02400
Brian Kavanagh
5360 S Boston St
Greenwood Village, CO 80111-3409

21E14DD02500
Nicholas Sumerfelt
3171 Fairview Way
West Linn, OR 97068-1517

21E14DD02600
Barbara Weber
18525 Vista Ct
West Linn, OR 97068-1132

21E14DD03000
Morgan McCarley
18485 Vista Ct
West Linn, OR 97068-1143

21E14DD03100
Dc Willamette Drive LLC
2327 Stickney Point Rd
Sarasota, FL 34231-4016

21E14DD03300
Chung Park
6457 McDuff Ct
Lake Oswego, OR 97035-8048

21E14DD03600
Liu Gong LLC
9520 SW Beaverton Hillsdale Hwy
Beaverton, OR 97005-3309

21E14DD05000
18675 Willamette Drive LLC
Pmb 305 2050 Beavercreek Rd Ste 101
Oregon City, OR 97045

21E14DD05100
Mirko Munetic
2128 Club House Dr
West Linn, OR 97068

21E14DD05200
Raymond & Rufina Louthan
412 N Division St
Pinehurst, ID 83850-8726

21E14DD05201
Angelica Villarreal
19590 View Dr
West Linn, OR 97068-1338

21E14DD05300 & 06300
Will Earhart II
18745 Willamette Dr
West Linn, OR 97068-1701

21E14DD05400
Judith Espino & Manuel Ortiz
19586 View Dr
West Linn, OR 97068-1338

21E14DD05500
Brian & Stephanie Schutzler
21640 S Sweetbriar Cir
West Linn, OR 97068-9228

21E14DD05600
Ann Bias
19512 View Dr
West Linn, OR 97068-1338

21E14DD05601
John & Mary Bartlett
19482 View Dr
West Linn, OR 97068-1336

21E14DD05602
Kathy Fisher
19500 View Dr
West Linn, OR 97068-1338

21E14DD05800
Elizabeth Zlatnick
19464 View Dr
West Linn, OR 97068-1336

21E14DD05900
William Adams
19426 View Dr
West Linn, OR 97068-1336

21E14DD06000
Daniel Mercer
19422 View Dr
West Linn, OR 97068-1336

21E14DD06100 & 06200
M5 Willamette LLC
5441 S MacAdam Ave Ste 208
Portland, OR 97239-3822

21E14DD06400
Thomas Irey
2151 Marylhurst Dr
West Linn, OR 97068-1417

21E14DD06500
Donald Bailey
6330 Haverhill Ct
West Linn, OR 97068-4900

21E14DD06600-06700
Berrey Investment LLC
25999 SW Canyon Creek Rd Ste E
Wilsonville, OR 97070

21E14DD06800
Berrey Investment LLC
110 N Carpenter St Dept 027
Chicago, IL 60607

21E14DD07000
Jody & Chrstina Forlenza
3315 Walling Way
West Linn, OR 97068-1539

21E14DD07100
Joseph Sewell
18747 Rose Way
West Linn, OR 97068-1532

21E14DD07200
Carolyn & Larry Ullman
18705 Rose Way
West Linn, OR 97068-1532

21E14DD07300
Richard & Victoria Hunt
18655 Rose Way
West Linn, OR 97068-1545

21E14DD07400
Terry & Sandra Bottemiller
3204 Fairview Way
West Linn, OR 97068-1519

21E14DD07500
Dennis & Jeanne Eisele
3220 Fairview Way
West Linn, OR 97068-1519

21E14DD07600
Melissa Dugan
3262 Fairview Way
West Linn, OR 97068-1519

21E14DD07601
Diane Finnigan
18625 Rose Way
West Linn, OR 97068-1545

21E14DD07700
Jason Johnsen & Kari Dee
3477 Walling Way
West Linn, OR 97068-1544

21E14DD07800
Shane & Michelle Winder
18718 Rose Way
West Linn, OR 97068-1534

21E14DD08000
Randy Karnes
18652 Rose Way
West Linn, OR 97068-1543

21E14DD08300
R & Cs LLC
4283 Terra Vista Ct
West Linn, OR 97068-1655

21E14DD08400
Holly Shannon
3344 Fairview Way
West Linn, OR 97068-1551

21E14DD08401
Wade & C Gefre
PO Box 243
West Linn, OR 97068

21E23AA00100
Noel Lee
19679 Old River Rd
West Linn, OR 97068-1639

21E23AA00200
Lisa Stanton
39710 Wendling Rd
Marcola, OR 97454-9105

21E23AA00601
Cedar Linn LLC
1539 NW 19th Ave
Portland, OR 97209-1702

21E23AA00700 & 01700
Douglas Seely
1780 SW Advance
West Linn, OR 97068-9677

21E23AA01100
Marilyn Frankel & Carol Pulvermacher
3364 Walling Way
West Linn, OR 97068-1555

21E23AA01200
Durward & Yvonne Bennett
3320 Walling Way
West Linn, OR 97068-1555

21E23AA01300
William Schroeter
PO Box 256
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Portland, OR 97225-6161

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Douglas Seely
1780 SW Advance
West Linn, OR 97068-9677

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Gerardo & Gail Bezmertney
19042 Walling Cir
West Linn, OR 97068-1716

21E23AA01801
Wen Zhao & Sui Yin
85 Laurel St
Lake Oswego, OR 97034-4938

21E23AA02000
Yandy Roman
18976 Walling Cir
West Linn, OR 97068-1714

21E23AA02100
Daniela Lucescu & Ryan Pacurar
18950 Walling Cir
West Linn, OR 97068-1714

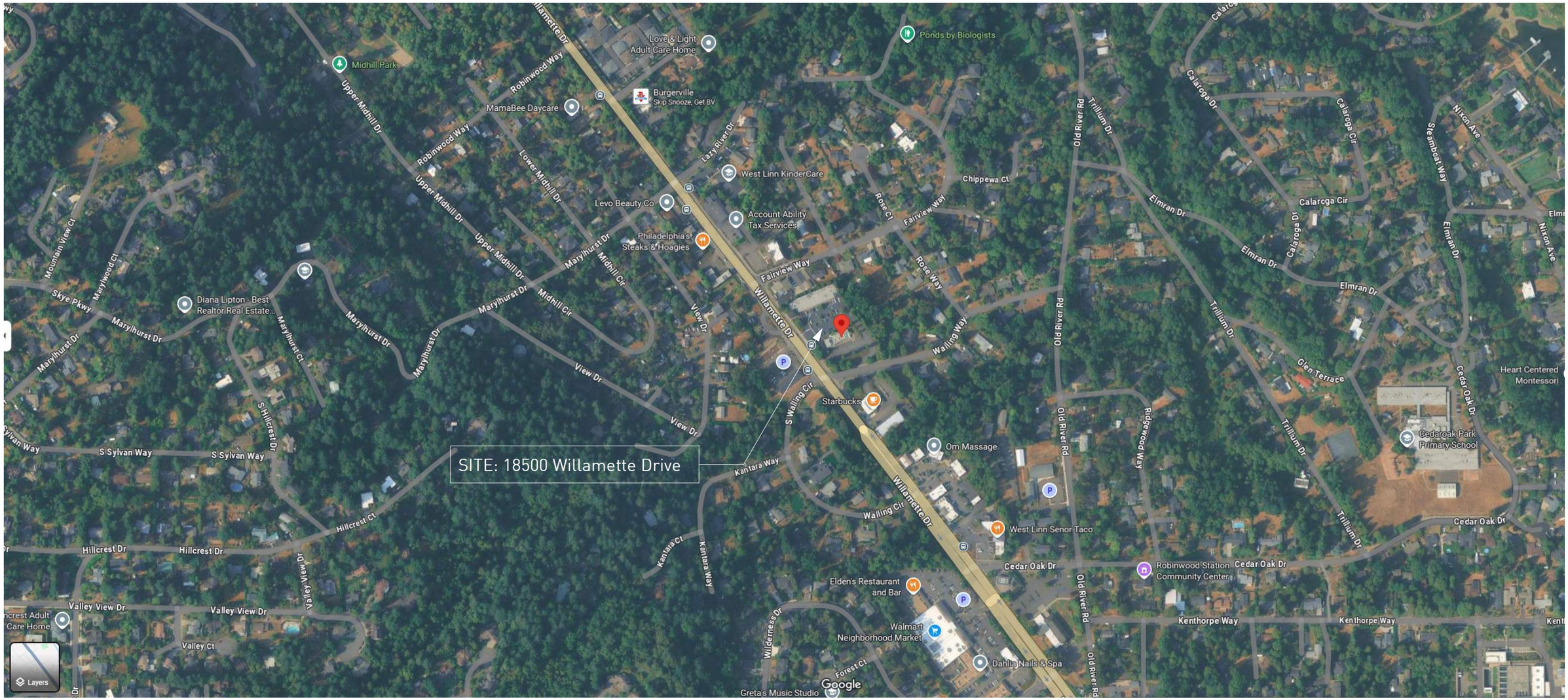
21E23AA02200
Tzer Cheng & Chien Ju
18902 Walling Cir
West Linn, OR 97068-1714

21E23AA02300
Jason & Hannah Harper
1309 N Maple St
Canby, OR 97013-2324

21E23AA02400
Douglas Pullin
18891 Walling Cir
West Linn, OR 97068-1717

21E23AA02500
Mark & Tracie Krellwitz
18909 Walling Cir
West Linn, OR 97068-1706

21E23AB00100
Wei An
19412 View Dr
West Linn, OR 97068-1336



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phone: 503 220 0668 | www.tvaarchitects.com

N

G0
VICINITY MAP

07/22/25

KAADY CAR WASH
18850 WILLAMETTE DRIVE, WEST LINN, OREGON 97068

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G1

EXISTING McDONALD'S SITE PHOTO

07/23/25

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G2

EXISTING McDONALD'S SITE PHOTO

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G3

BURNSIDE KAADY PRECEDENT PHOTO

07/23/25

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G4

EXISTING BURNSIDE KAADY PRECEDENT

07/23/25

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G5

EXISTING BURNSIDE KAADY PRECEDENT PHOTOS

07/23/25

KAADY CAR WASH

18850 WILLAMETTE DRIVE, WEST LINN, OREGON 97068

Decibel readings taken at 50'-0" from the car wash exit: 72 db to 80 db (Including background noise from Burnside) SHOWN
Decibel readings taken at 42 feet from the car wash entry on the north side: 72 db

These readings put the noise levels within the "medium" noise range, the equivalent of busy street traffic, which is a background noise source in both the Burnside location and the Willamette Drive location. Note that the distance from the entrance at the Willamette Drive conditions is an additional 50'-0" minimally, with an 8'-0" min. high CMU buffering wall on the east side, and Willamette Drive, and a commercial propoerty on the west side.

The business operations fall between 8:00 AM and 8:00 PM, which is within noise tolerance levels of the West Linn Noise Code.

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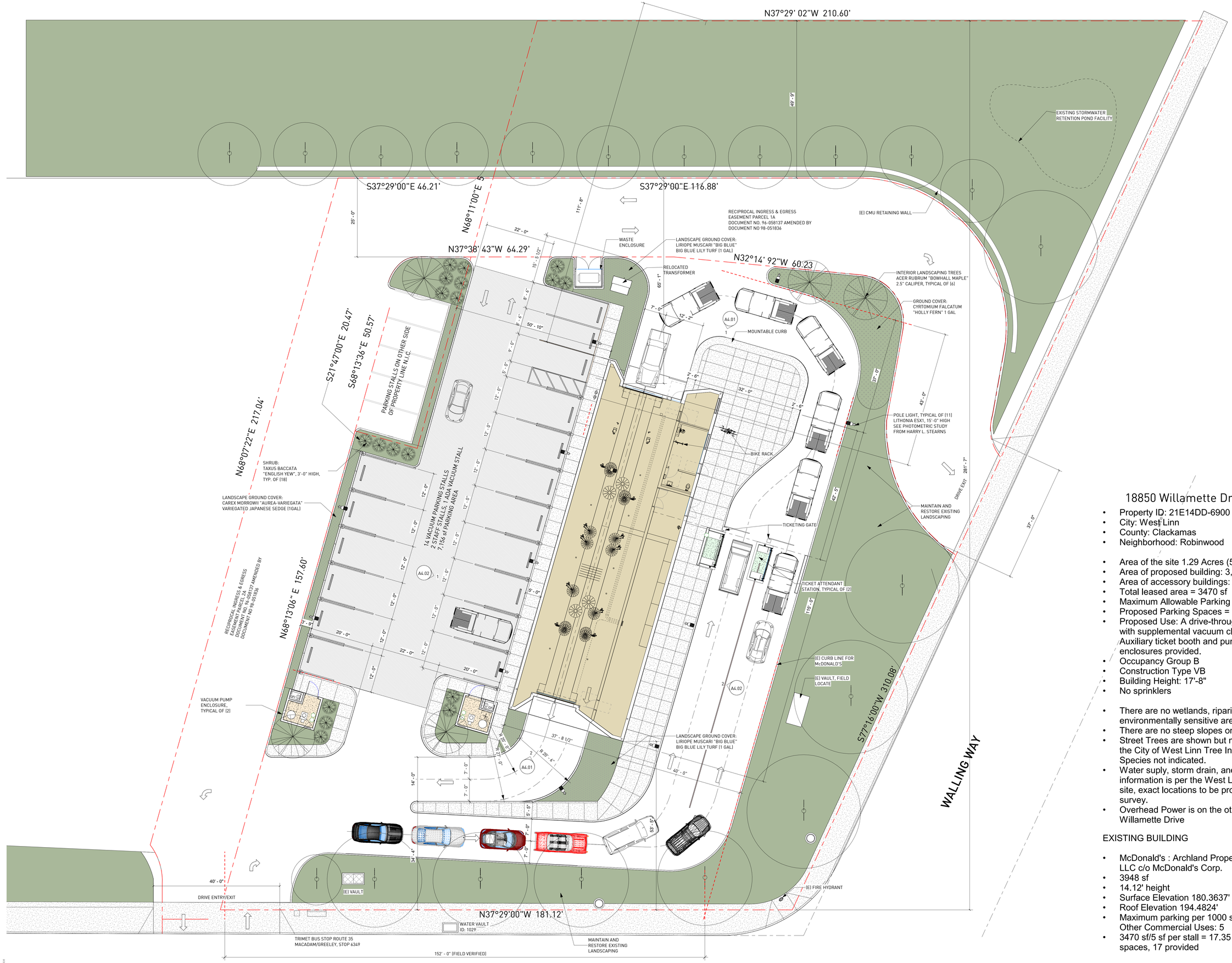

1 SITE PLAN
3/32" = 1'-0"

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NOT FOR CONSTRUCTION

KAADY CAR WASH

18850 WILLAMETTE DRIVE, WEST LINN, OREGON 97068

18850 Willamette Drive

- Property ID: 21E14DD-6900
- City: West Linn
- County: Clackamas
- Neighborhood: Robinwood

- Area of the site 1.29 Acres (56,378 sf)
- Area of proposed building: 3,190 sf
- Area of accessory buildings: 280 sf
- Total leased area = 3470 sf
- Maximum Allowable Parking Spaces = 17
- Proposed Parking Spaces = 17
- Proposed Use: A drive-through car wash with supplemental vacuum cleaning stations. Auxiliary ticket booth and pumphouse enclosures provided.
- Occupancy Group B
- Construction Type VB
- Building Height: 17'-8"
- No sprinklers

- There are no wetlands, riparian, or environmentally sensitive areas on site.
- There are no steep slopes on site.
- Street Trees are shown but not identified on the City of West Linn Tree Inventory Map. Species not indicated.
- Water suply, storm drain, and sanitary sewer information is per the West Linn City Maps site, exact locations to be provided by survey.
- Overhead Power is on the other side of Willamette Drive

EXISTING BUILDING

- McDonald's : Archland Property LLC c/o McDonald's Corp.
- 3948 sf
- 14.12' height
- Surface Elevation 180.3637'
- Roof Elevation 194.4824'
- Maximum parking per 1000 sf for Other Commercial Uses: 5
- 3470 sf/5 sf per stall = 17.35 spaces, 17 provided

△ Revisions

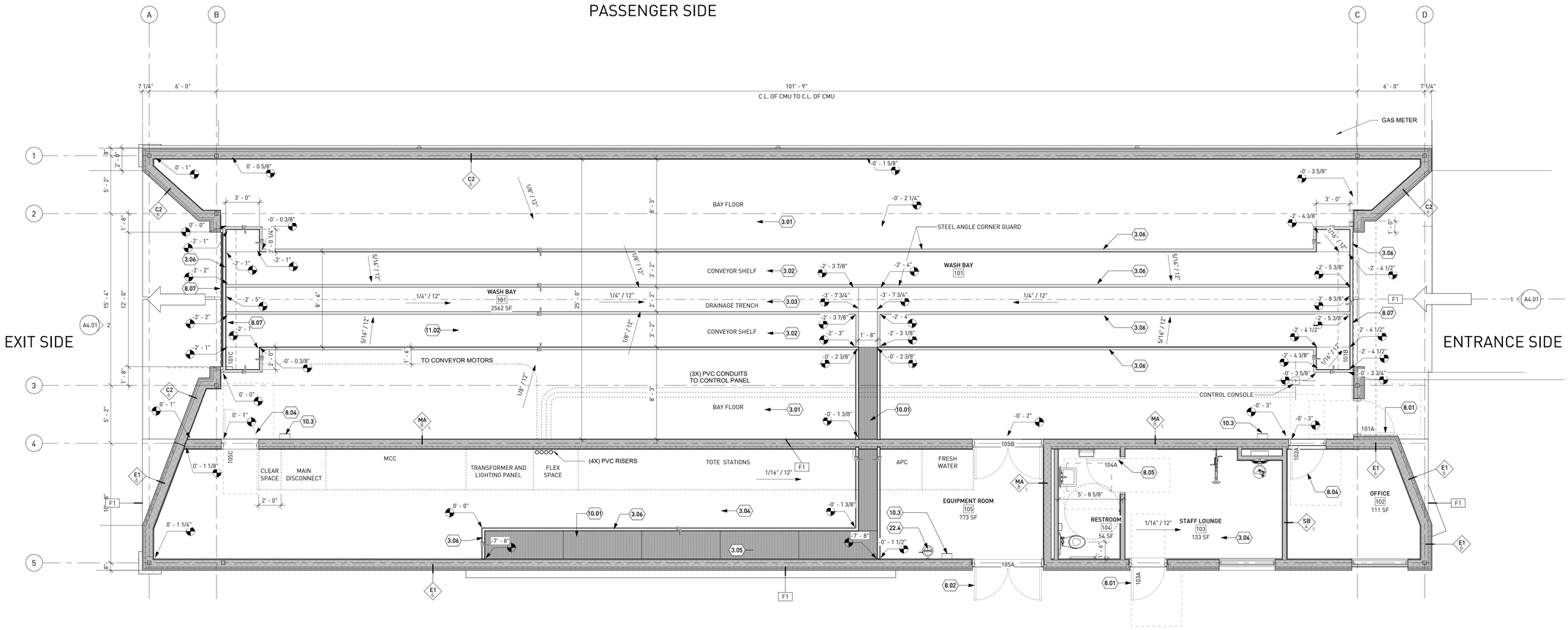
CONDITIONAL USE PERMIT

OVERALL SITE PLAN

Project # 22005

A0.01

Date: 7.23.2025



1 FLOOR PLAN

1/4" = 1'-0"

GENERAL NOTES

1. SITE INFORMATION SHOWN FOR REFERENCE ONLY. SEE SITE PLANS.
2. SEE G SERIES SHEETS FOR CODE COMPLIANCE INFORMATION.
3. ALL DIMENSIONS ARE TO FACE OF FINISH, CENTERLINE OF COLUMN, OR GRID LINE, UNO, EXTERIOR DIMENSIONS ARE TO FACE OF FINISH; DIMENSIONS INDICATED AS "CLR MIN" ARE TO FACE OF FINISH
4. ALL DOOR OPENINGS PERPENDICULAR TO A WALL ARE 5" TO THE WALL UNO.
5. SEE G1.XX FOR TYPICAL WALL TYPES, OTHER ASSEMBLY TYPES, STEEL COLUMN FIRE PROTECTION, UNO.
6. SEE EXTERIOR ELEVATIONS FOR WINDOW TYPES NOT SHOWN HERE.
7. DOOR CLEARANCES ARE SHOWN DASHED AND ARE FOR REFERENCE ONLY.
8. PROVIDE SOLID FRT BLOCKING AT ALL GRAB BARS AND WHERE INDICATED ON INTERIOR ELEVATIONS.
9. THE WASH BAY SLAB AND CONVEYOR SHELF SLAB RUN PARALLEL TO EACH OTHER, 25" APART VERTICALLY. SEE STRUCTURAL FOR POUR SEQUENCE.
10. THE WASH BAY SLAB AND OFFICE SLAB RUN PARALLEL TO AND FLUSH WITH EACH OTHER. THE WASH BAY SLAB IS 8" THICK, AND THE OFFICE BAY SLAB IS 4" THICK. SEE STRUCTURAL. THE WASH BAY SLAB ALSO HAS A CROSS SLOPE THAT DRAINS TO THE CONVEYOR/DRAINAGE TRENCH, WHILE THE OFFICE SLAB DOES NOT HAVE A CROSS SLOPE.
11. ELECTRICAL AND PLUMBING CONDUITS ARE SHOWN FOR REFERENCE ONLY. SEE ELECTRICAL AND PLUMBING DRAWINGS FOR EXACT LOCATIONS AND ADDITIONAL INFORMATION.
12. SINCE SITE CONDITIONS WILL VARY, THE DIRECTIONAL INFORMATION IS DESCRIBED BY FUNCTION: ENTRANCE, EXIT, DRIVER'S SIDE, AND PASSENGER'S SIDE. CARDINAL DIRECTIONS WILL BE REFERENCED ON SITE PLANS AND CIVIL DOCUMENTS.
13. CAR WASH EQUIPMENT IS SHOWN FOR REFERENCE ONLY EXACT COMPONENTS TO BE OWNER FURNISHED AND LOCATED.

KEYNOTES

SHOWN THUS ⬡

NOTE: ONLY KEYNOTES APPROPRIATE TO THIS SHEET ARE SHOWN IN THIS KEYNOTE LEGEND. GC TO VERIFY ANY DISCREPANCY IN KEYNOTING.

3.01	8" POURED-IN-PLACE CONCRETE WASH BAY SLAB. SEE STRUCTURAL FOR REINFORCING. HARD TROWEL FINISH. SLOPE 1" OVER 30'-0" FROM ENTRANCE TO EXIT. (100'-0"). COUNTER-SLOPE TO DRAIN TO CONVEYOR SHELF. PROVIDE MASTERPOLYHEED 980 MID-RANGE WATER-REDUCING CONCRETE ADMIXTURE AND FINISH WITH W.R. MEADOWS SEAL CURE-25 CONCRETE CURING AND SEALING COMPOUND.
3.02	8" POURED-IN-PLACE CONCRETE CONVEYOR SHELF SLAB. SEE STRUCTURAL FOR REINFORCING. HARD TROWEL FINISH. SLOPE IS PARALLEL TO WASH BAY SLAB. COUNTER SLOPE TO DRAINAGE TRENCH. PROVIDE MASTERPOLYHEED 980 MID-RANGE WATER-REDUCING CONCRETE ADMIXTURE. FINISH WITH W.R. MEADOWS SEAL CURE-25 CONCRETE CURING AND SEALING COMPOUND. COORDINATE INSTALLATION OF CONVEYOR SYSTEM WITH OWNER. PROVIDE STEEL ANGLES FOR OWNER PROVIDED FIBERGLASS TRENCH GRATING.
3.03	6" POURED-IN-PLACE CONCRETE DRAINAGE TRENCH SLAB. SEE STRUCTURAL FOR REINFORCING. HARD TROWEL FINISH SMOOTH. PROVIDE MASTERPOLYHEED 980 WATER-REDUCING ADMIXTURE. FINISH WITH W.R. MEADOWS SEAL CURE-25 CONCRETE CURING AND SEALING COMPOUND. SLOPE TOWARDS CROSS-TRENCH, SEE PLAN FOR SLOPE. COORDINATE APPLICATION OF OWNER PROVIDED TRENCH COVER PLATING.
3.04	4" POURED-IN-PLACE CONCRETE OFFICE SLAB. SEE STRUCTURAL FOR REINFORCING. SLOPE PARALLEL TO MATCH BAY FLOOR SLAB. NO CROSS SLOPE. HARD TROWEL SMOOTH FINISH. PROVIDE MASTERPOLYHEED 980 MID-RANGE WATER-REDUCING CONCRETE ADMIXTURE. FINISH WITH W.R. MEADOWS SEAL CURE-25 CONCRETE CURING AND SEALING COMPOUND.
3.05	FILTRATION PIT: 6" POURED-IN-PLACE CONCRETE SLAB ON GRADE, WITH 6" THICK CONCRETE BAFFLE PARTITIONS STAGGERED AS INDICATED ON DRAWINGS. HARD TROWEL FINISH. PROVIDE MASTERPOLYHEED 980 MID-RANGE WATER-REDUCING CONCRETE ADMIXTURE. FINISH WITH W.R. MEADOWS SEAL CURE-25 CONCRETE CURING AND SEALING COMPOUND.
3.06	L3X3X1/4" EMBEDDED ANGLE WITH 3/8" DIA. X 3" SHEAR ANCHORS @ 16" O.C.
8.01	GLAZED ALUMINUM STOREFRONT ENTRY 3'-0" X 8'-0": KAWNEER 350T STANDARD MEDIUM THERMAL SWING DOOR ENTRANCE. 3 1/2" ALUMINUM STILES AND TOP RAIL, 6 1/2" BOTTOM RAIL. GUARDIAN SNX 62/27 LOW-E TEMPERED GLASS LITES, U .28 MAX, SHGC .26 MAX. DOOR HARDWARE: BUTT HINGES (4EA): IVES 5BB1HW 4.5 X 4.5 NRP 630 BRUSHED STAINLESS FINISH, EXIT DEVICE: FALCON F-25-R-L-NL-LAT RIM DEVICE, CLOSER: LCN 4020 CUSH SURFACE MOUNTED CLOSER. THRESHOLD: PEMKO 171 SERIES COMMERCIAL FLAT THRESHOLD 5" WIDE. GASKET: ZERO 488SBK PSA. DOOR SWEEP ZERO 8198AA RAIN DRIP WITH NYLON BRUSH.
8.02	GLAZED ALUMINUM PAIRED STOREFRONT ENTRY 6'-0" X 8'-0": KAWNEER 350T STANDARD MEDIUM THERMAL SWING DOOR ENTRANCE. 3 1/2" ALUMINUM STILES AND TOP RAIL, 6 1/2" BOTTOM RAIL. GUARDIAN SNX 62/27 LOW-E TEMPERED GLASS LITES, U .28 MAX, SHGC .26 MAX. DOOR HARDWARE: BUTT HINGES (8EA): IVES 5BB1HW 4.5 X 4.5 NRP 630 BRUSHED STAINLESS FINISH, EXIT DEVICE (2EA): FALCON F-25-C-L-NL-LAT CONCEALED VERTICAL ROD DEVICE. CLOSER (2EA): LCN 4020 CUSH SURFACE MOUNTED CLOSER. THRESHOLD: PEMKO 171 SERIES COMMERCIAL FLAT THRESHOLD 5" WIDE. GASKET: ZERO 488SBK PSA. DOOR SWEEP ZERO 8198AA RAIN DRIP WITH NYLON BRUSH.
8.04	HOLLOW METAL OFFICE DOOR WITH HOLLOW METAL FRAME 3'-0" X 8'-0", PAINT WHITE. HARDWARE: BUTT HINGES (4EA): IVES 5BB1HW 4.5 X 4.5 NRP 630 BRUSHED STAINLESS FINISH, OFFICE LOCKSET: FALCON T-521-CP6-LAT. CLOSER: LCN 4110 SURFACE MOUNT. GASKET: ZERO 488SBK PSA.
8.05	HOLLOW METAL RESTROOM DOOR IN HOLLOW METAL FRAME 3'-0" X 8'-0", PAINT WHITE. HARDWARE: BUTT HINGES (4EA): IVES 5BB1HW 4.5 X 4.5 NRP 630 BRUSHED STAINLESS FINISH, BATHROOM PRIVACY LOCKSET WITH OCCUPANCY INDICATOR: FALCON H2171-610-LAT. CLOSER: LCN 4020 SURFACE MOUNT (PUSH SIDE)
8.07	OVERHEAD COILING DOOR: COOKSON MODEL ESD10 MOTORIZED ROLLING SERVICE DOOR. 20 GAUGE PAINTED GALVANIZED STEEL, PAINT WHITE. 12'-0" WIDE X 9'-0" HIGH.
10.01	OWNER FURNISHED 1 1/2" THICK FIBERGLASS TRENCH GRATE. SET ON L2X2X1/8" CONTINUOUS STEEL ANGLES.
10.3	FIRE EXTINGUISHER AND FEC: FIRE EXTINGUISHER: POTTER ROEMER 3010 IOR FIRE MARSHAL APPROVED ALTERNATE) MULTIPURPOSE DRY-CHEMICAL TYPE IN STEEL CONTAINER: UL RATED 4A:60BC, 10 LB NOMINCAL CPACITY WITH MONAMMONIUM PHOSPHATE BASED DRY CHEMICAL IN ENAMELED STEEL CONTAINER. CABINET: POTTER ROEMER MODEL 7024 SURFACE MOUNTED GALVANNEALED STEEL WITH RECOATABLE WHITE POLYESTER FINISH. ROLLED RADIUS WITH GLASS PANEL DOOR.
11.02	CAR WASH EQUIPMENT PROVIDED BY OWNER, SHOWN FOR REFERENCE ONLY. FINAL LOCATION OF EQUIPMENT TO BE DETERMINED BY OWNER.
22.4	EYE WASH STATION: BRADLEY MODEL S19224BPT HALO EYEWASH WITH STAINLESSS STEEL BOWL, TAILPIECE & P-TRAP. COMPLIES WITH ANSI/ISEA STANDARD Z358.1. BARRIER FREE DESIGN. MINIMUM FLOW .4 GPM AT 30 PSI.

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NOT FOR CONSTRUCTION

KAADY CAR WASH

18850 WILLAMETTE DRIVE, WEST LINN, OREGON 97068

△ Revisions

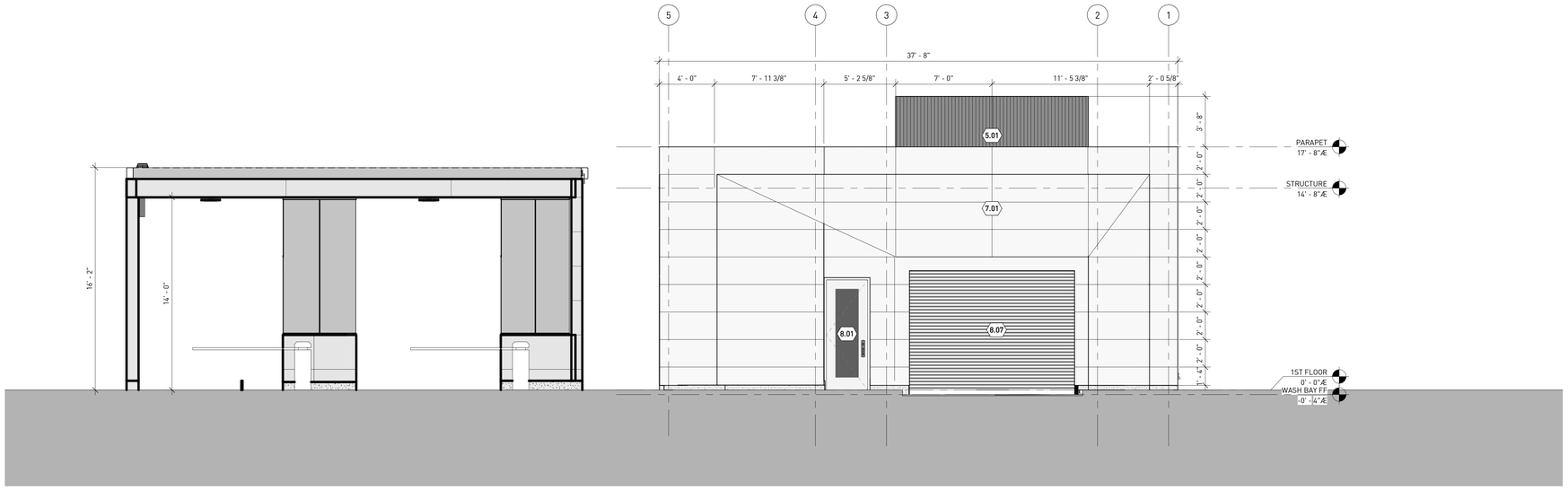
CONDITIONAL USE PERMIT

FLOOR PLAN
LEVEL 01

Project # 22005

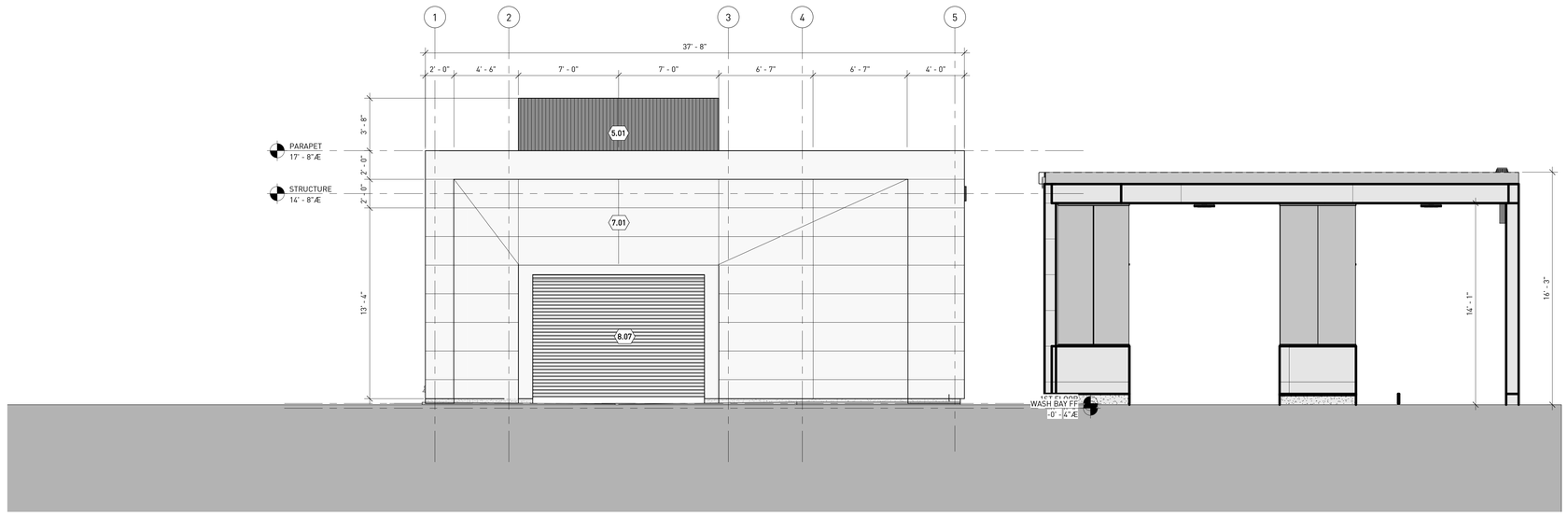
A1.00

Date: 7.23.25



1 ENTRANCE ELEVATION

1/4" = 1'-0"



2 EXIT ELEVATION

1/4" = 1'-0"

GENERAL NOTES

1. PAINT ALL NON-NOTED MISCELLANEOUS ITEMS TO MATCH ADJACENT REFERENCE FINISH COLOR UNO.
2. LOUVER COLOR TO BE COORDINATED / SELECTED WITH SUBMITTALS.
3. SEE FLOOR PLAN FOR DOOR AND WINDOW TAGS,TYP.
4. WINDOW TYPES NOT SHOWN ON FLOOR PLANS ARE SHOWN ON THESE ELEVATIONS.
5. SEE WALL SECTIONS FOR ADDITIONAL ELEVATED AREAS.

KEYNOTES

SHOWN THUS ⬡

NOTE: ONLY KEYNOTES APPROPRIATE TO THIS SHEET ARE SHOWN IN THIS KEYNOTE LEGEND. GC TO VERIFY ANY DISCREPANCY IN KEYNOTING.

5.01	HSS 4X4 ROOF SCREEN FRAME, SEE STRUCTURAL. RIBBED METAL PANEL CLADDING, METAL SALES T10-A.
7.01	SMOOTH METAL PANEL SMP-1, COMPOSITE METAL PANEL, ALPOLIC, ALUCOBOND, REYNOBOND OR APPROVED. .020 INCH THICK ALUMINUM SHEET WITH ORGANIC COATING FINISH WITH A LOW-DENSITY POLYEHTYLENE CORE. COLOR: WHITE. ROUT AND RETURN FABRICATION FOR 1" NOMINAL PANEL DEPTH. PROVIDE BACKER ROD AND SILICONE SEALANT FOR 1/2" VERTICAL AND HORIZONTAL JOINTS.
8.01	GLAZED ALUMINUM STOREFRONT ENTRY 3'-0" X 8'-0": KAWNEER 350T STANDARD MEDIUM THERMAL SWING DOOR ENTRANCE. 3 1/2" ALUMINUM STILES AND TOP RAIL, 6 1/2" BOTTOM RAIL. GUARDIAN SNX 62/27 LOW-E TEMPERED GLASS LITES, U .28 MAX, SHGC .26 MAX. DOOR HARDWARE: BUTT HINGES (4EA): IVES 5BB1HW 4.5 X 4.5 NRP 630 BRUSHED STAINLESS FINISH, EXIT DEVICE: FALCON F-25-R-L-NL-LAT RIM DEVICE, CLOSER: LCN 4020 CUSH SURFACE MOUNTED CLOSER. THRESHOLD: PEMKO 171 SERIES COMMERCIAL FLAT THRESHOLD 5" WIDE. GASKET: ZERO 488SBK PSA. DOOR SWEEP ZERO 8198AA RAIN DRIP WITH NYLON BRUSH.
8.07	OVERHEAD COILING DOOR: COOKSON MODEL ESD10 MOTORIZED ROLLING SERVICE DOOR. 20 GAUGE PAINTED GALVANIZED STEEL, PAINT WHITE. 12' -0" WIDE X 9' -0" HIGH.

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KAADY CAR WASH

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△ Revisions

CONDITIONAL USE PERMIT

EXTERIOR ELEVATIONS

Project # 22005

A4.01

Date: 7.23.25

GENERAL NOTES

1. PAINT ALL NON-NOTED MISCELLANEOUS ITEMS TO MATCH ADJACENT REFERENCE FINISH COLOR UNO.
2. LOUVER COLOR TO BE COORDINATED / SELECTED WITH SUBMITTALS.
3. SEE FLOOR PLAN FOR DOOR AND WINDOW TAGS,TYP.
4. WINDOW TYPES NOT SHOWN ON FLOOR PLANS ARE SHOWN ON THESE ELEVATIONS.
5. SEE EXTERIOR COMPOSITE SHEETS FOR EXTERIOR FINISHES AND GLAZING.
6. SEE WALL SECTIONS FOR ADDITIONAL ELEVATED AREAS.
7. ALIGN CENTERLINE OF PANEL JOINTS ON SOFFITS AND PROJECTING FRAME ELEMENTS WITH CENTERLINE OF PANEL JOINTS ON WALLS, TYP.

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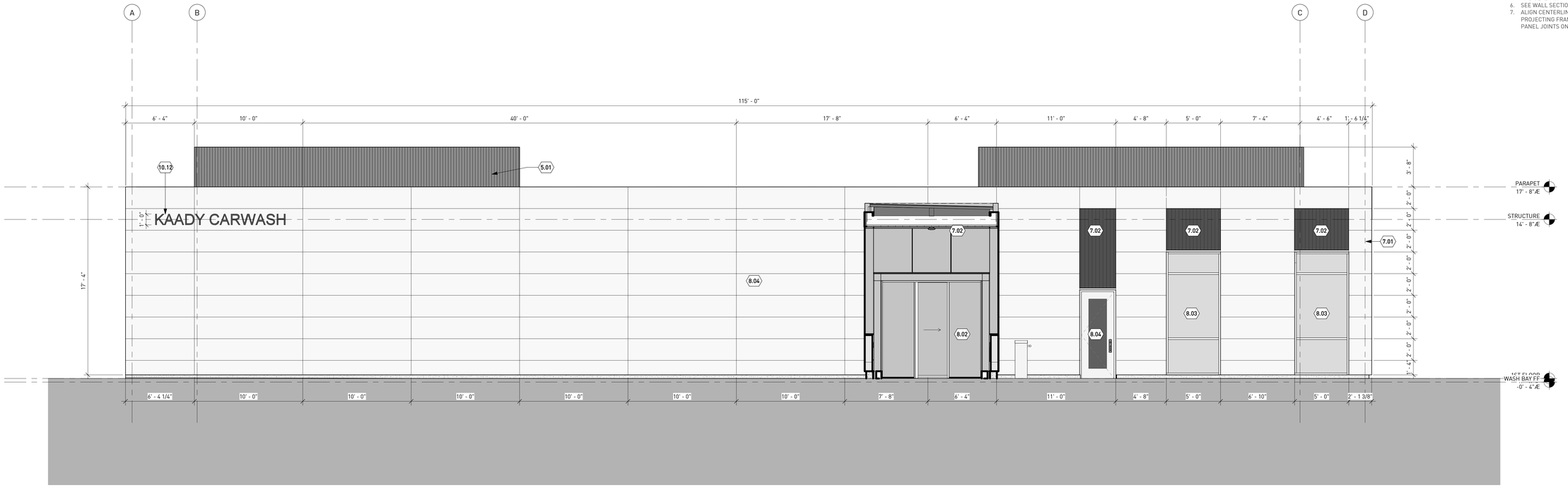
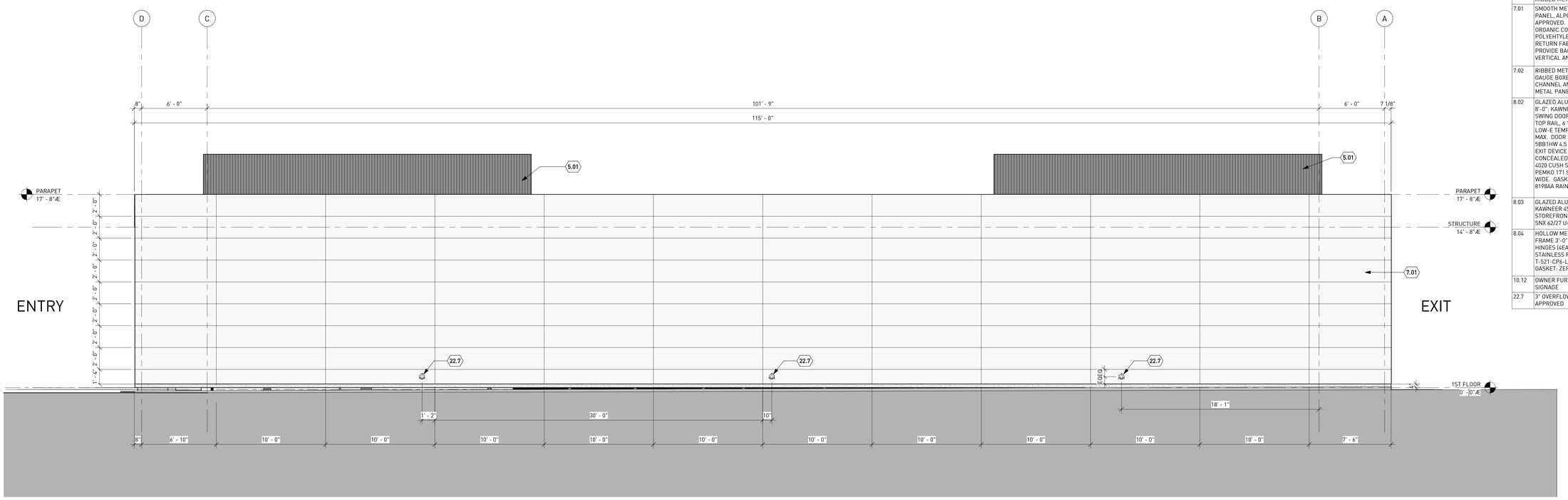
NOT FOR CONSTRUCTION



1 DRIVER'S SIDE ELEVATION (SOUTH)
1/4" = 1'-0"



2 PASSENGER'S SIDE ELEVATION (NORTH)
1/4" = 1'-0"

KEYNOTES

SHOWN THUS

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5.01	HSS 4X4 ROOF SCREEN FRAME, SEE STRUCTURAL. RIBBED METAL PANEL CLADDING, METAL SALES T10-A.
7.01	SMOOTH METAL PANEL SMP-1, COMPOSITE METAL PANEL, ALPOLIC, ALUCOBOND, REYNOBOND OR APPROVED. .020 INCH THICK ALUMINUM SHEET WITH ORGANIC COATING FINISH WITH A LOW-DENSITY POLYEHTYLENE CORE. COLOR: WHITE. ROUT AND RETURN FABRICATION FOR 1" NOMINAL PANEL DEPTH. PROVIDE BACKER ROD AND SILICONE SEALANT FOR 1/2" VERTICAL AND HORIZONTAL JOINTS.
7.02	RIBBED METAL PANEL RMP-1: METAL SALES T10-A, 22 GAUGE BOXED RIB METAL PANEL. MOUNT TO FURRING CHANNEL AND FLUSH OUT WITH ADJACENT SMOOTH METAL PANEL SMP-1. COLOR: GREY
8.02	GLAZED ALUMINUM PAIRED STOREFRONT ENTRY 6'-0" X 8'-0": KAWNEER 350T STANDARD MEDIUM THERMAL SWING DOOR ENTRANCE. 3 1/2" ALUMINUM STILES AND TOP RAIL, 6 1/2" BOTTOM RAIL. GUARDIAN SNX 62/27 LOW-E TEMPERED GLASS LITES, U .28 MAX, SHGC .26 MAX. DOOR HARDWARE: BUTT HINGES (8EA): IVES 5BB1HW 4.5 X 4.5 NRP 630 BRUSHED STAINLESS FINISH, EXIT DEVICE (2EA): FALCON F-25-C-L-NL-LAT CONCEALED VERTICAL ROD DEVICE. CLOSER (2EA): LCN 4020 CUSH SURFACE MOUNTED CLOSER. THRESHOLD: PEMKO 171 SERIES COMMERCIAL FLAT THRESHOLD 5" WIDE. GASKET: ZERO 488SBK PSA. DOOR SWEEP ZERO 8198AA RAIN DRIP WITH NYLON BRUSH.
8.03	GLAZED ALUMINUM STOREFRONT: BASIS OF DESIGN: KAWNEER 451T THERMALLY BROKEN 4 1/2" ALUMINUM STOREFRONT. 1" INSULATED GLAZING UNITS, GUARDIAN SNX 62/27 U=.28, SHGC=.26. COLOR: WHITE
8.04	HOLLOW METAL OFFICE DOOR WITH HOLLOW METAL FRAME 3'-0" X 8'-0", PAINT WHITE. HARDWARE: BUTT HINGES (4EA): IVES 5BB1HW 4.5 X 4.5 NRP 630 BRUSHED STAINLESS FINISH, OFFICE LOCKSET: FALCON T-521-CP6-LAT. CLOSER: LCN 4110 SURFACE MOUNT. GASKET: ZERO 488SBK PSA.
10.12	OWNER FURNISHED, OWNER INSTALLED BUILDING SIGNAGE
22.7	3" OVERFLOW NOZZLE WITH FLAPPER. ZURN ZF 199 OR APPROVED

△ Revisions

KAADY CAR WASH

18850 WILLAMETTE DRIVE, WEST LINN, OREGON 97068

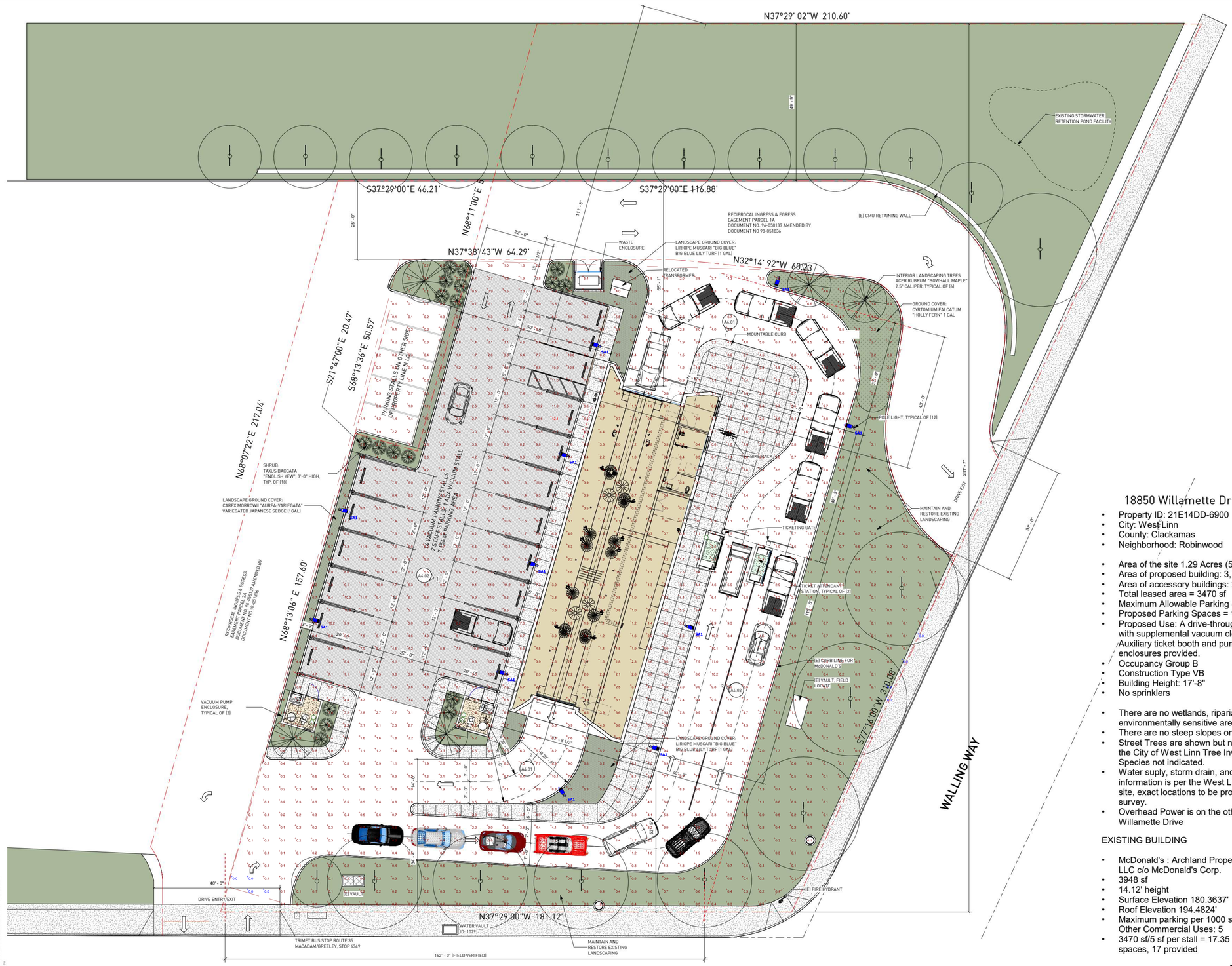
CONDITIONAL USE PERMIT

EXTERIOR ELEVATIONS

Project # 22005

A4.02

Date: 7.23.25



1 SITE PLAN
3/32" = 1'-0"

WILLAMETTE DRIVE (STATE HWY 43)

Plan View
Scale - 1" = 12ft

Schedule

Symbol	Label	Image	QTY	Catalog Number	Description	Lamp	Number Lamps	Lumens per Lamp	LLF	Wattage	Polar Plot
	SA1		11	ESX1 LED P2 40K R3	ESX LED Area Luminaire Size 1 P2 Lumen Package 4000K CCT Type R3 Distribution		1	13917	0.9	97.59	Max: 7840cd

18850 Willamette Drive

- Property ID: 21E14DD-6900
- City: West Linn
- County: Clackamas
- Neighborhood: Robinwood

- Area of the site 1.29 Acres (56,378 sf)
- Area of proposed building: 3,190 sf
- Area of accessory buildings: 280 sf
- Total leased area = 3470 sf
- Maximum Allowable Parking Spaces = 17
- Proposed Parking Spaces = 17
- Proposed Use: A drive-through car wash with supplemental vacuum cleaning stations. Auxiliary ticket booth and pumphouse enclosures provided.
- Occupancy Group B
- Construction Type VB
- Building Height: 17'-8"
- No sprinklers

- There are no wetlands, riparian, or environmentally sensitive areas on site.
- There are no steep slopes on site.
- Street Trees are shown but not identified on the City of West Linn Tree Inventory Map. Species not indicated.
- Water suply, storm drain, and sanitary sewer information is per the West Linn City Maps site, exact locations to be provided by survey.
- Overhead Power is on the other side of Willamette Drive

EXISTING BUILDING

- McDonald's : Archland Property LLC c/o McDonald's Corp.
- 3948 sf
- 14.12' height
- Surface Elevation 180.3637'
- Roof Elevation 194.4824'
- Maximum parking per 1000 sf for Other Commercial Uses: 5
- 3470 sf/5 sf per stall = 17.35 spaces, 17 provided

tva architects inc.
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NOT FOR CONSTRUCTION

KAADY CAR WASH

18850 WILLAMETTE DRIVE, WEST LINN, OREGON 97068

Δ Revisions

CONDITIONAL USE PERMIT

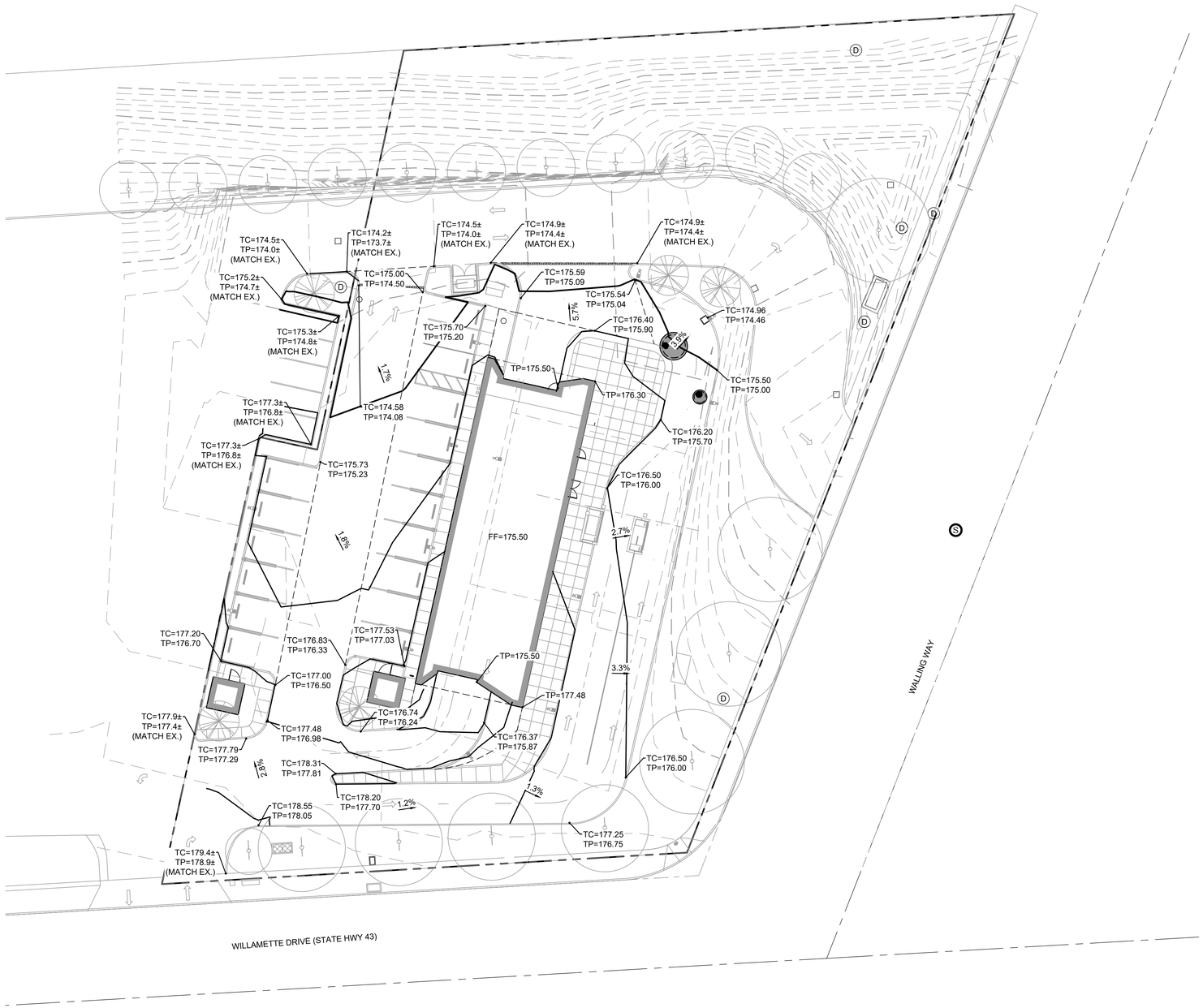
OVERALL SITE PLAN

Project # 22005

A0.01

Date: 7.23.2025

Designer
Date 07/25/2025
Scale Not to Scale
Drawing No.
Summary



SHEET NOTES

1. SLOPES PROVIDED ON SLOPE ARROW ARE FOR REFERENCE ONLY.
2. LANDINGS ON ACCESSIBLE ROUTES SHALL NOT EXCEED 1.5% IN ANY DIRECTION.
3. ALL ACCESSIBLE ROUTES SHALL COMPLY WITH CURRENT ADA ACCESSIBILITY GUIDELINES FOR BUILDING AND FACILITIES (ADAAG).
4. 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.
5. TOP OF CONCRETE OUTSIDE DOOR = FF ELEV. MINUS 0.02' SLOPE LANDING 1.5% AWAY FROM BLDG.

KEY NOTES

1 XXXXXXXXXX

GRADING LABEL LEGEND

CALLOUT	DESCRIPTION
X.X% →	GRADING SLOPE AND DIRECTION (DOWNHILL)

SPOT ELEVATION
DESCRIPTION LISTED BELOW. NO DESCRIPTION MEANS TP OR TG

XX.XX XX

BOS	BOTTOM OF SWALE
BOW	BACK OF WALK
BS	BOTTOM OF STEP
BW	BOTTOM OF WALL
EG	EXISTING GRADE
FF	FINISHED FLOOR
FL	FLOW LINE
G	GUTTER
HP	HIGH POINT
LP	LOW POINT
RIM	RIM OF STRUCTURE
TC	TOP OF CURB
TG	TOP OF GROUND
TP	TOP OF PAVEMENT
TS	TOP OF STEP
TW	TOP WALL

SHEET LEGEND

- DRAINAGE FLOW DIRECTION
- GRADE BREAK
- 49 EX. CONTOUR MINOR
- 50 EX. CONTOUR MAJOR
- 49 CONTOUR MINOR (FG)
- 50 CONTOUR MAJOR (FG)
- > CONVEYANCE SWALE

SCALE 1 INCH = 20 FEET
20 0 20 40

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REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 14, 1989
KEVIN MAX FYKELBOSCH
RENEWS: 12/31/

KAADY CAR WASH
WEST LINN, OREGON

Revisions

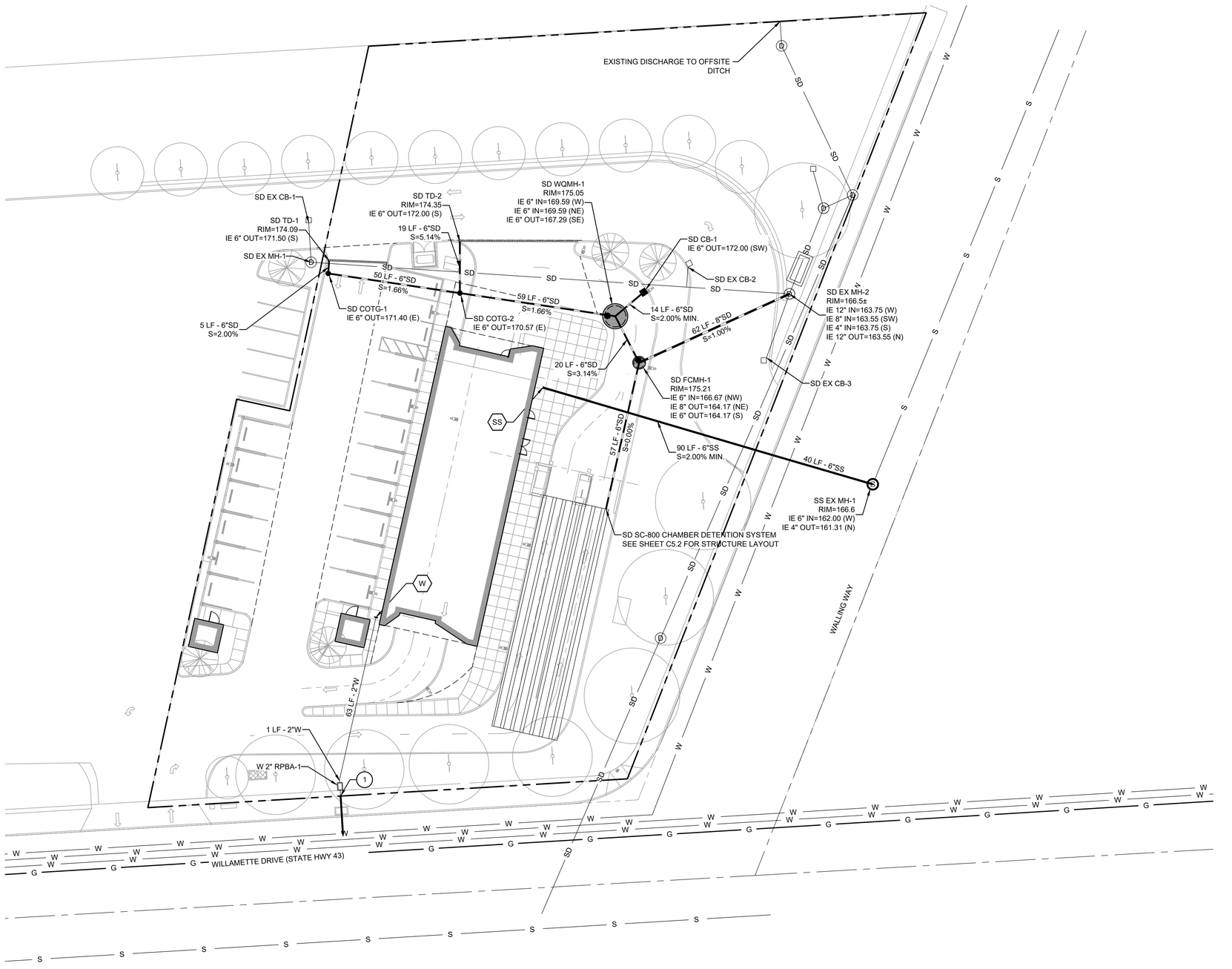
LAND-USE SET

GRADING PLAN

Project # 22005

C3.0

Date: 7.9.2025



SHEET NOTES

1. PIPE BEDDING AND BACKFILL FOR ALL UTILITIES SHALL BE DONE PER DETAIL X/C5.X.
2. STRUCTURES LOCATIONS ARE BASED ON CENTER OF STRUCTURE.
3. INSTALL TRUST BLOCK ON FIRE AND WATER LINES PER DETAIL X & X/CX.X.

KEY NOTES

1 COORDINATE WATER SERVICE POINT OF CONNECTION TO EXISTING X" LATERAL WITH CITY OF WEST LINN.

2 FIELD VERIFY LOCATION AND IE OF EXISTING XX" XXXXX LATERAL PRIOR TO CONSTRUCTION.

3 IRRIGATION BACKFLOW ASSEMBLY VAULT, SEE LANDSCAPE PLANS.

UTILITY LABEL LEGEND

STRUCTURE LABEL

UTILITY TYPE (SD=STORM DRAINAGE, S=SANITARY SEWER, W=WATER, FP=FIRE PROTECTION)
STRUCTURE TYPE CALLOUT
ID NUMBER (WHERE APPLICABLE)

XX XX-XX
X+XX.X RT X.X'
RIM=
IE IN = XX.X
IE OUT = XX.X

LOCATION (WHERE APPLICABLE)
STRUCTURE INFO (WHERE APPLICABLE)

PIPE LABEL

UTILITY LENGTH
UTILITY SIZE
UTILITY TYPE

XXLF - XX" XX

S=X.XX%

SLOPE (WHERE APPLICABLE)

STRUCTURE TYPE

CALLOUT	DESCRIPTION	DETAIL REF.
BEND	BEND, USE FITTING IF APPLICABLE	
BWV	BACKWATER VALVE	
CB	TRAPPED CATCH BASIN	
CO	CLEANOUT TO GRADE	
CONN	CONNECTION	
DW	DRYWELL	
FCMH	FLOW CONTROL MANHOLE	
FD	FOUNDATION DRAINAGE POINT OF CONN.	
FH	FIRE HYDRANT	
GV	GATE VALVE	
OF	OUTFALL	
OV	OVERFLOW INLET	
SDMH	48" DIA. STORM DRAIN MH	
TD	TRENCH DRAIN	
TEE	TEE CONNECTION	
WYE	WYE CONNECTION	
WQMH	WATER QUALITY MANHOLE	

SHEET LEGEND

SS CONNECT TO WASTE LINE. SEE PLUMBING PLANS FOR CONTINUATION. SIZE AS NOTED.

RD CONNECT TO STORM DRAIN/ROOF DRAIN. SEE PLUMBING PLANS FOR CONTINUATION. SIZE AND IE AS NOTED.

W CONNECT TO COLD WATER SYSTEM. SEE PLUMBING PLANS FOR CONTINUATION. SIZE AS NOTED.

U UTILITY CROSSING. PROVIDE 12" MIN. CLEARANCE, U.N.O.

SCALE 1 INCH = 20 FEET
20 0 20 40

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REGISTERED PROFESSIONAL ENGINEER 83693PE OREGON JULY 31, 2015 TIMOTHY ANDREW FOCHTMAN RENEWS 12/31/

KAADY CAR WASH
WEST LINN, OREGON

Revisions

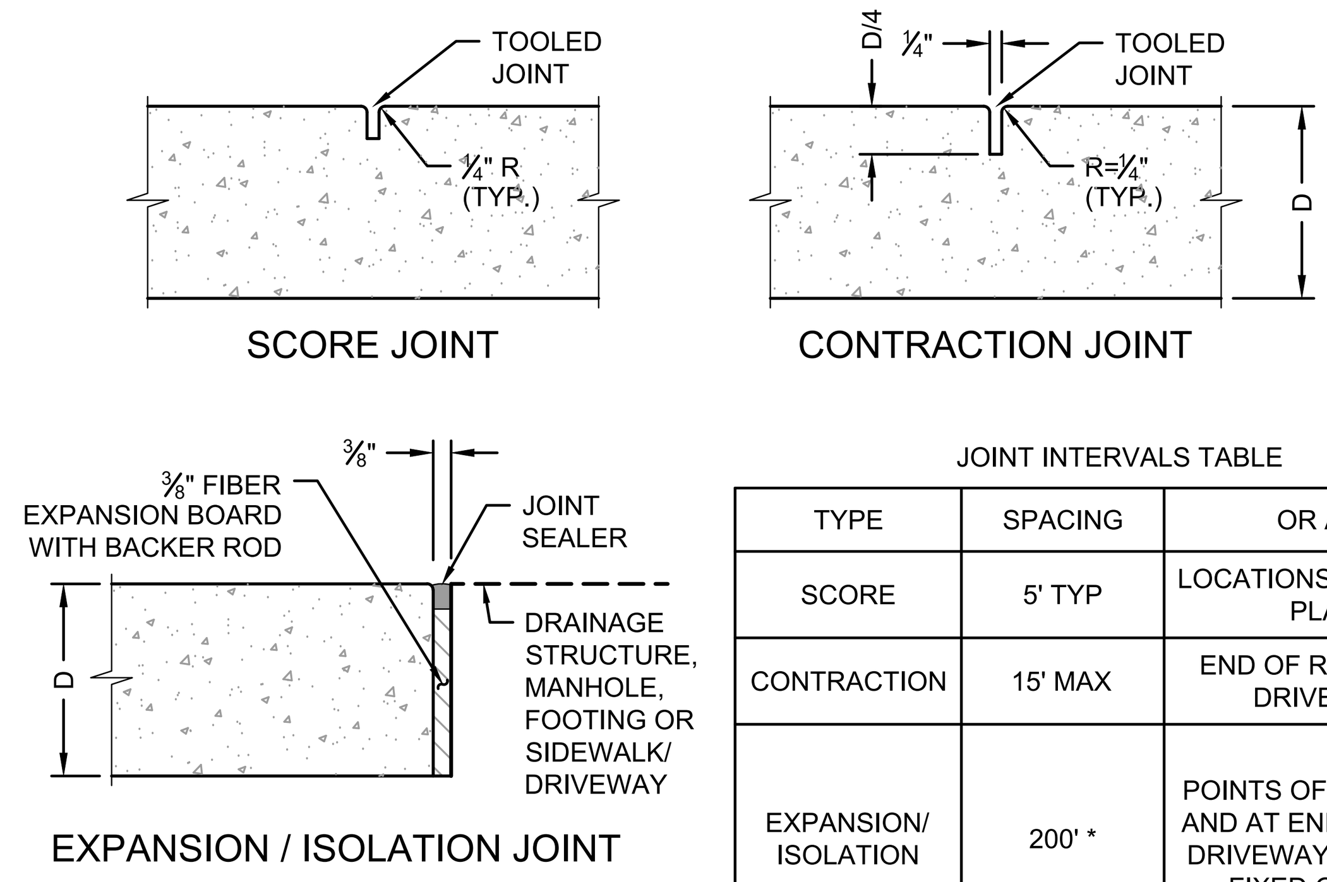
LAND-USE SET

UTILITY PLAN

Project # 22005

C4.0

Date: 7.9.2025



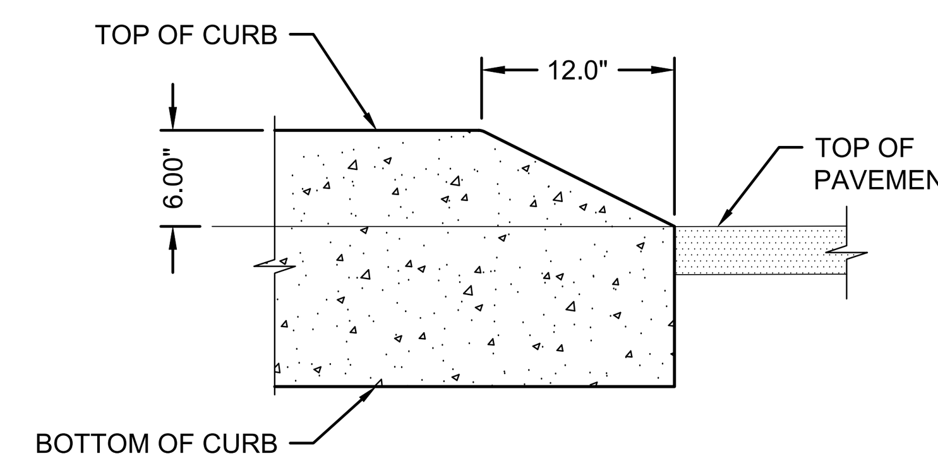
JOINT INTERVALS TABLE

TYPE	SPACING	OR AT ...
SCORE	5' TYP	LOCATIONS SHOWN ON PLANS
CONTRACTION	15' MAX	END OF RAMPS AND DRIVEWAYS
EXPANSION/ ISOLATION	200' *	POINTS OF TANGENCY AND AT ENDS OF EACH DRIVEWAY OR OTHER FIXED OBJECTS

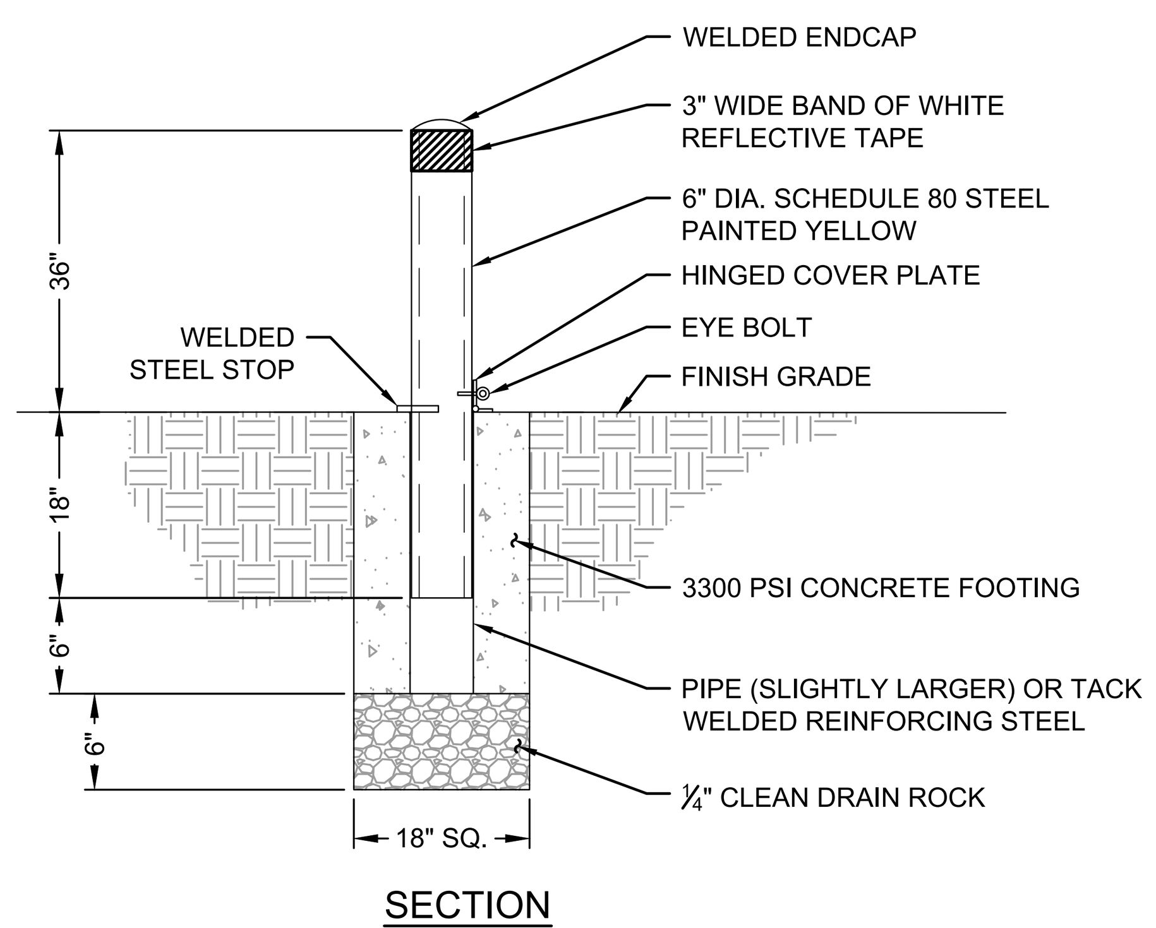
* MONOLITHIC CURB AND SIDEWALK SHALL BE 45' MAX

NOTES:
1. CONTRACTION JOINTS MAY BE USED IN PLACE OF SCORE JOINTS.
2. CONSTRUCTION COLD JOINTS MAY BE USED IN PLACE OF CONTRACTION JOINTS.
3. PROVIDE MEDIUM BROOM FINISH WITH NO TOOL MARKS.

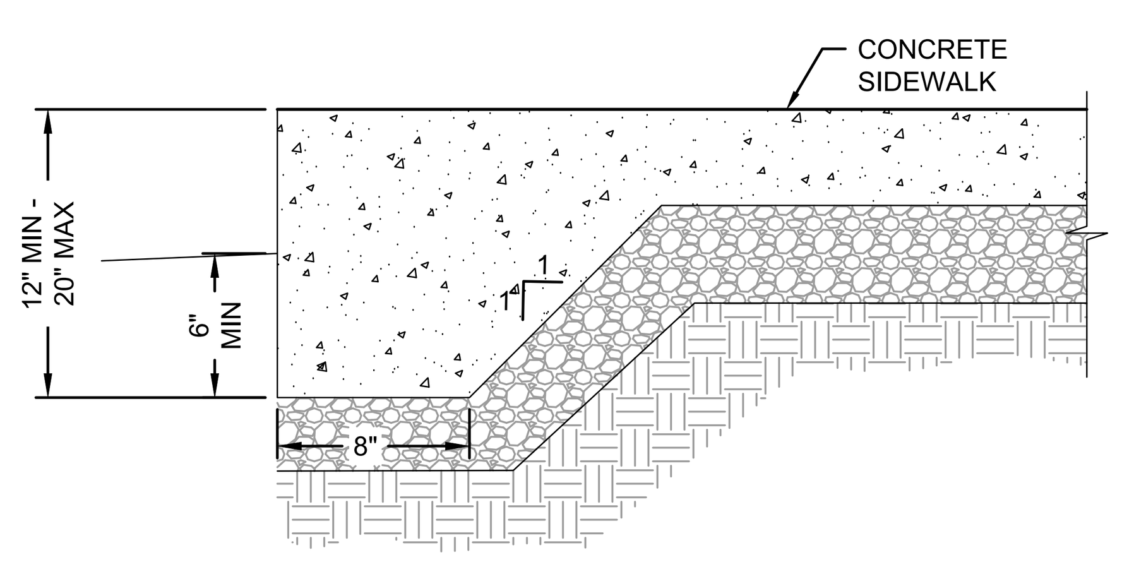
X SIDEWALK JOINTS
SCALE: NTS



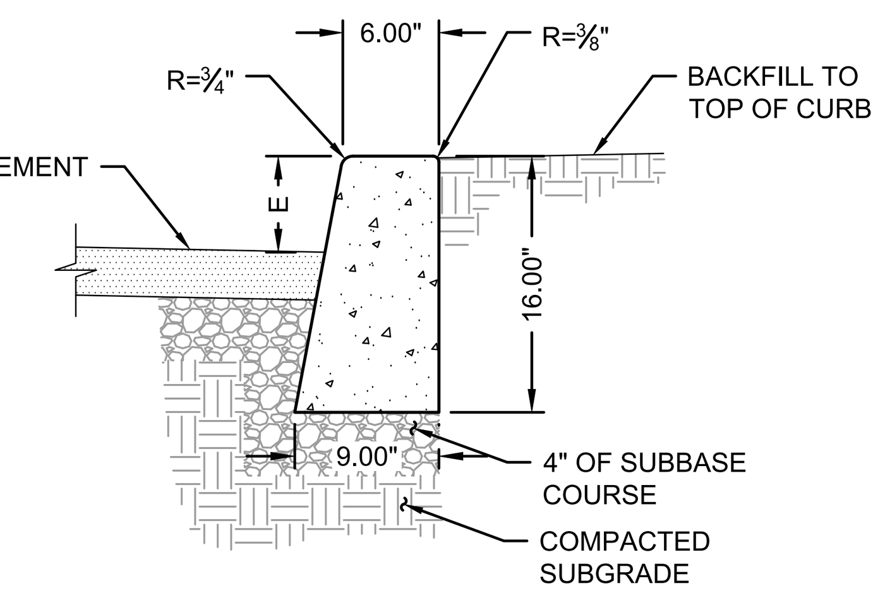
X CONCRETE CURB ENDING
SCALE: NTS



X REMOVABLE PIPE BOLLARD
SCALE: NTS

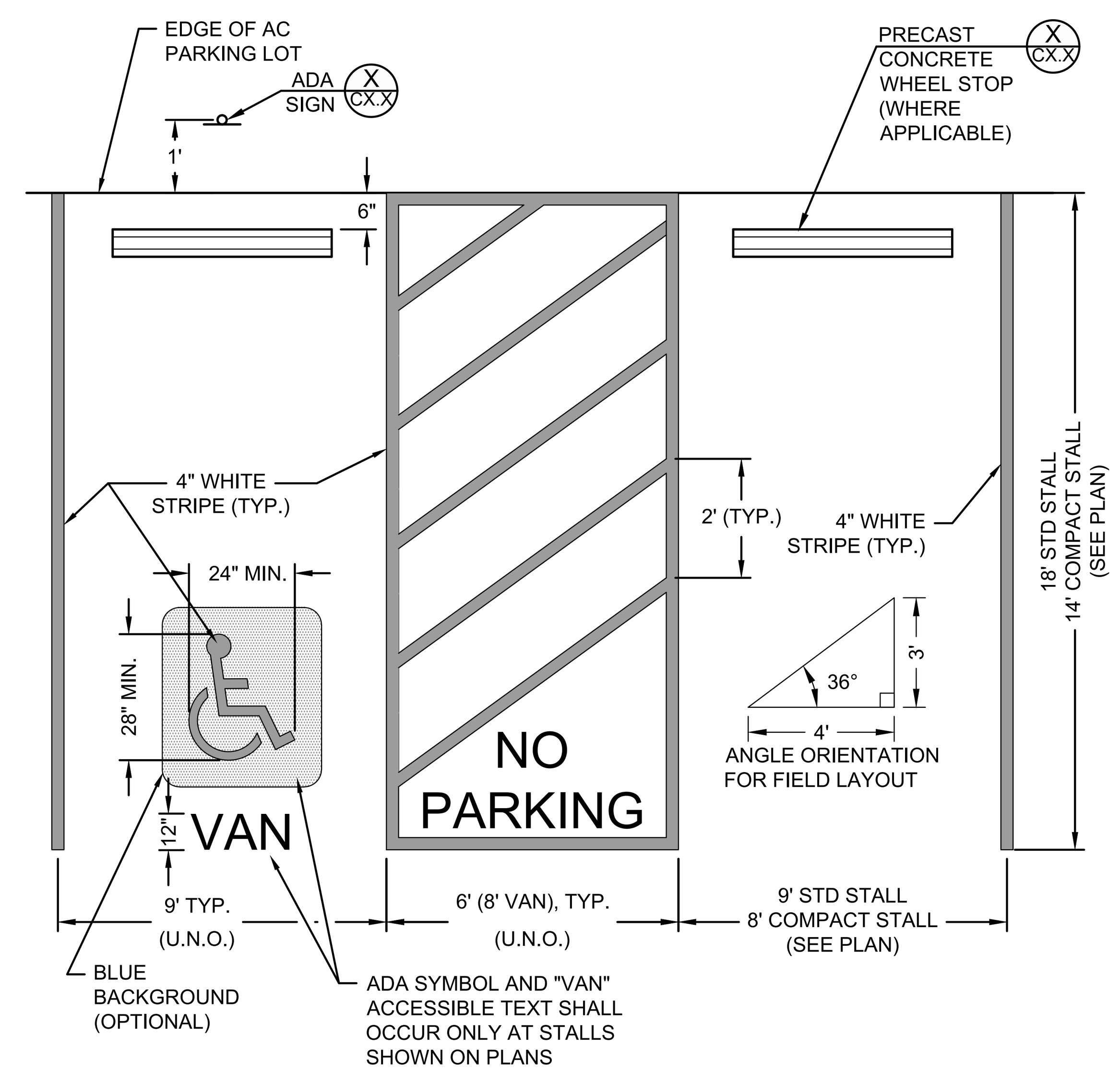


X THICKENED CONCRETE EDGE
SCALE: NTS

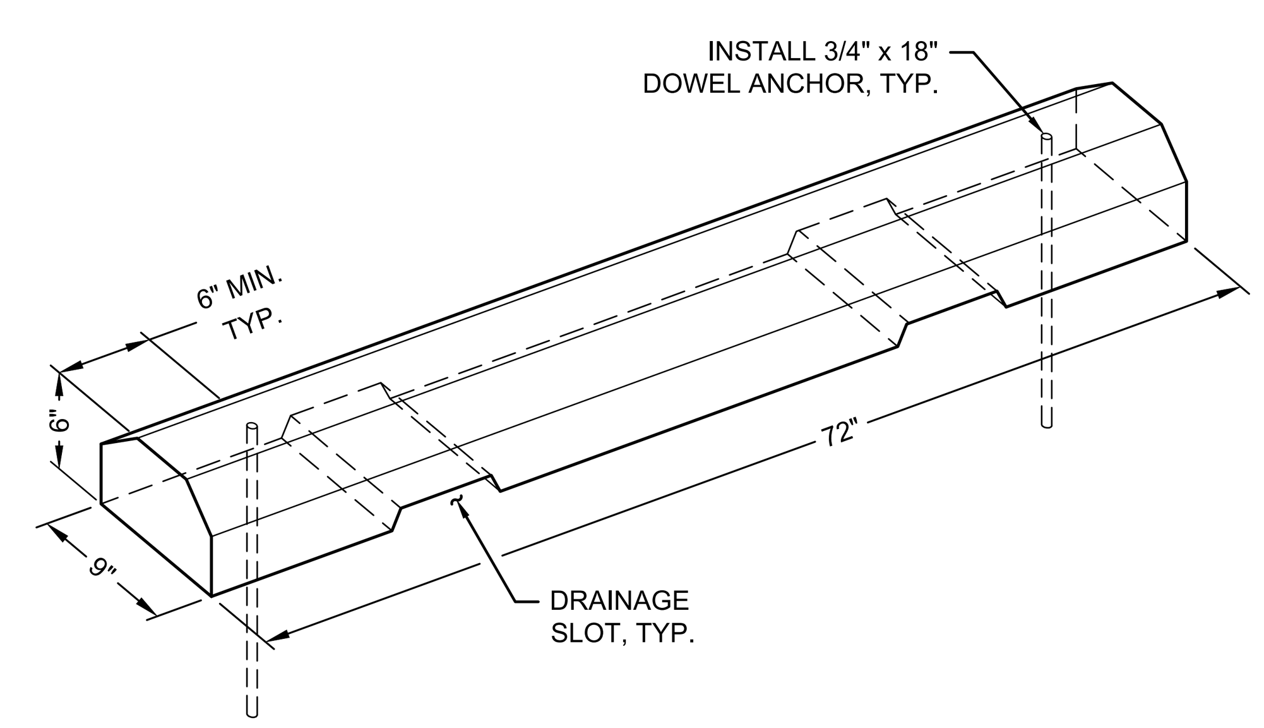


NOTES:
1. CURB EXPOSURE 'E' = 6", TYP. VARY AS SHOWN ON PLANS OR AS DIRECTED.
2. CONSTRUCT CONTRACTION JOINTS AT 15' MAX. SPACING AND AT RAMPS. CONSTRUCT EXPANSION JOINTS AT 200' MAX SPACING AT POINTS OF TANGENCY AND AT ENDS OF EACH DRIVEWAY.
3. TOPS OF ALL CURBS SHALL SLOPE TOWARD THE ROADWAY AT 2% UNLESS OTHERWISE SHOWN OR AS DIRECTED.
4. DIMENSIONS ARE NOMINAL AND MAY VARY TO CONFORM WITH CURB MACHINE AS APPROVED BY THE ENGINEER.

X STANDARD CONCRETE CURB
SCALE: NTS

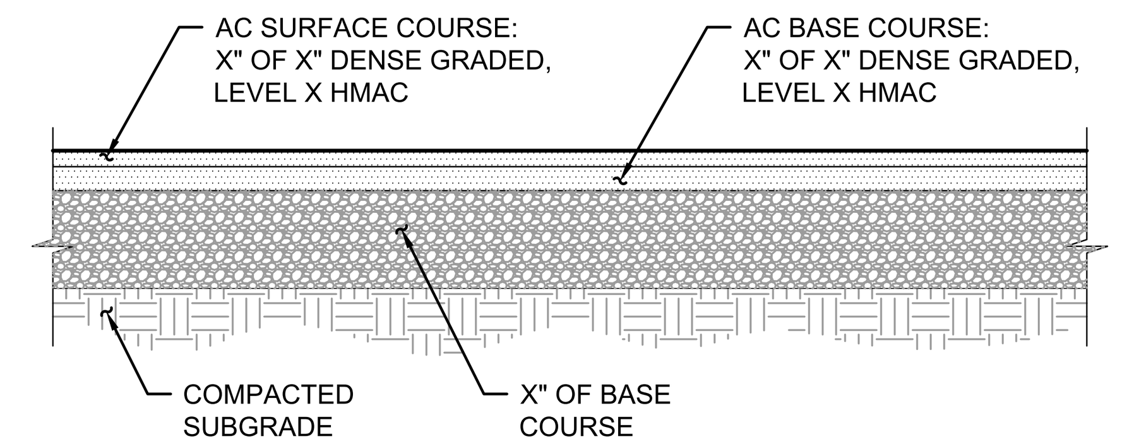


X TYPICAL PARKING LAYOUT
SCALE: NTS

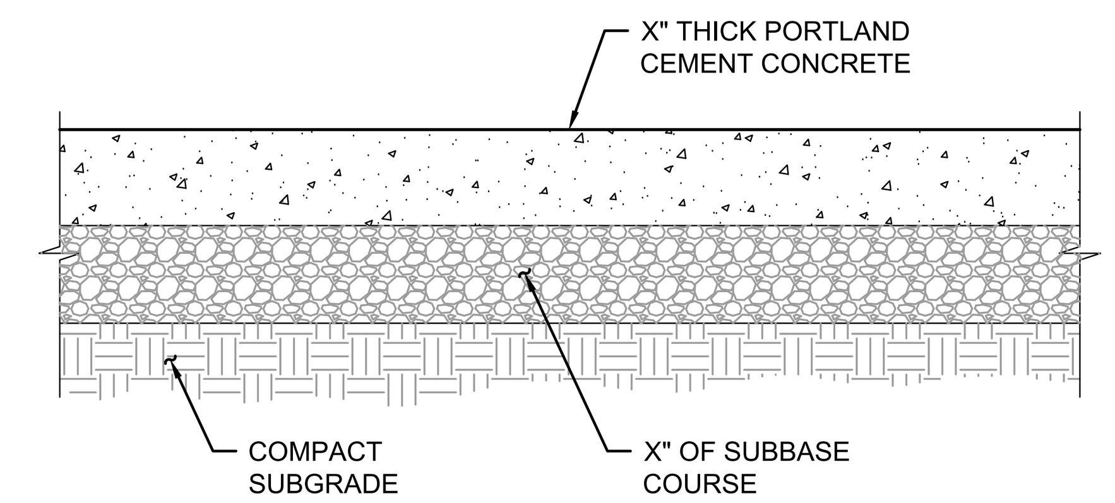


NOTES:
1. DIMENSIONS ARE NOMINAL AND MAY VARY TO CONFORM TO MANUFACTURER'S PRODUCTS APPROVED BY ENGINEER.

X PRECAST CONCRETE WHEEL STOP
SCALE: NTS

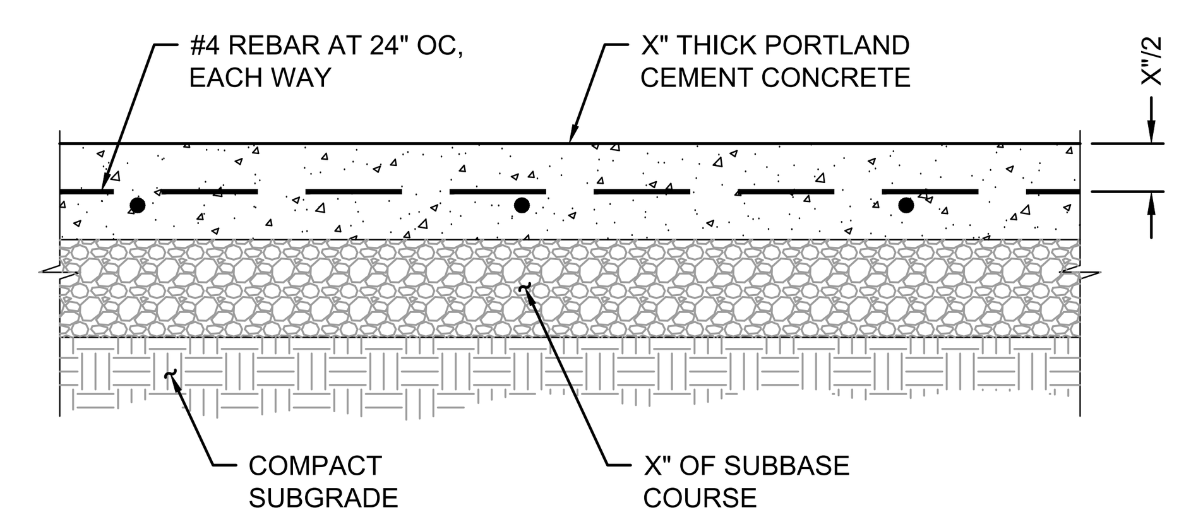


X ASPHALT PAVEMENT SECTION
SCALE: NTS



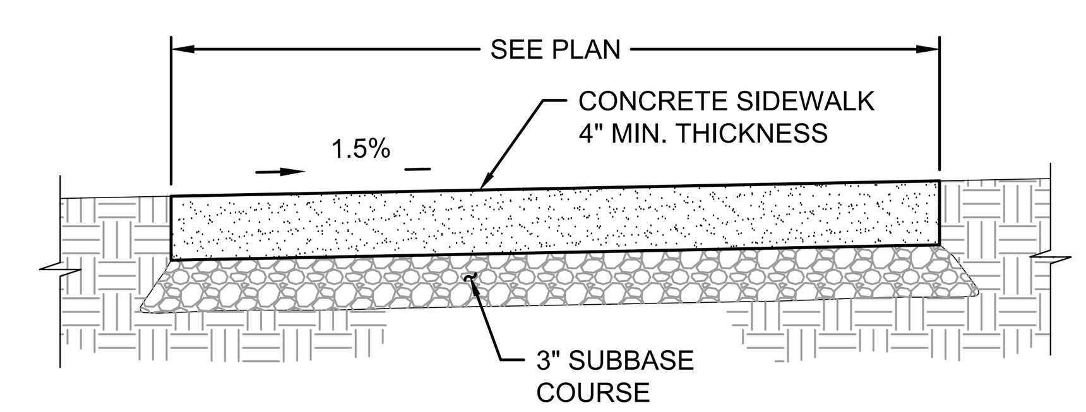
NOTES:
1. - CONSTRUCT CONTRACTION JOINTS AT 15' MAX. SPACING AND AT RAMPS.
   - CONSTRUCT EXPANSION JOINTS AT 200' MAX. SPACING AT POINTS OF TANGENCY AND AT ENDS OF EACH DRIVEWAY.
2. PROVIDE MEDIUM TO COARSE BROOM FINISH.

X CONCRETE PAVEMENT SECTION
SCALE: NTS



NOTES:
1. JOINTS:
   - 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.
2. PROVIDE MEDIUM TO COARSE BROOM FINISH.

X REINFORCED CONCRETE PAVEMENT SECTION
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.

X CONCRETE SIDEWALK
SCALE: NTS

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EVAN M. EYKELBOSCH
PRELIMINARY NOT FOR CONSTRUCTION
RENEWS: 12/31/

KAADY CAR WASH
WEST LINN, OREGON

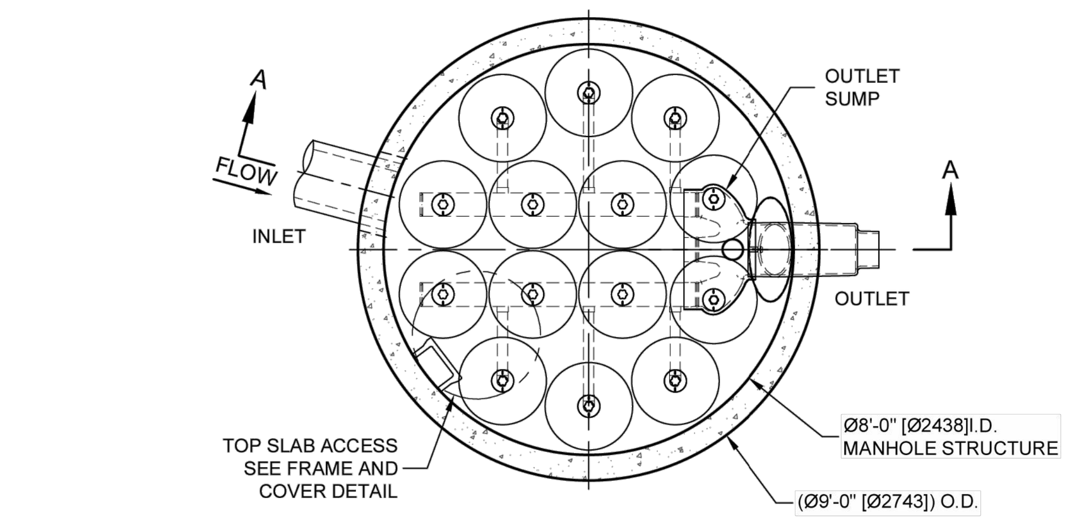
Revisions

LAND-USE SET
DETAILS

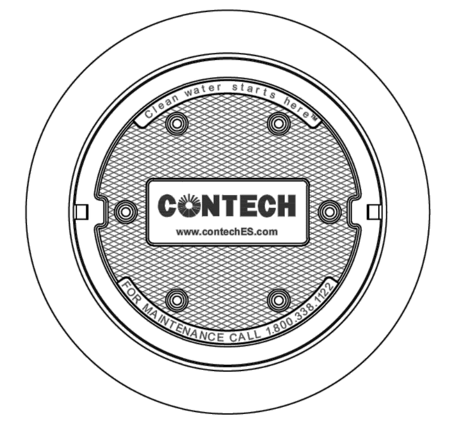
Project # 22005

C5.0

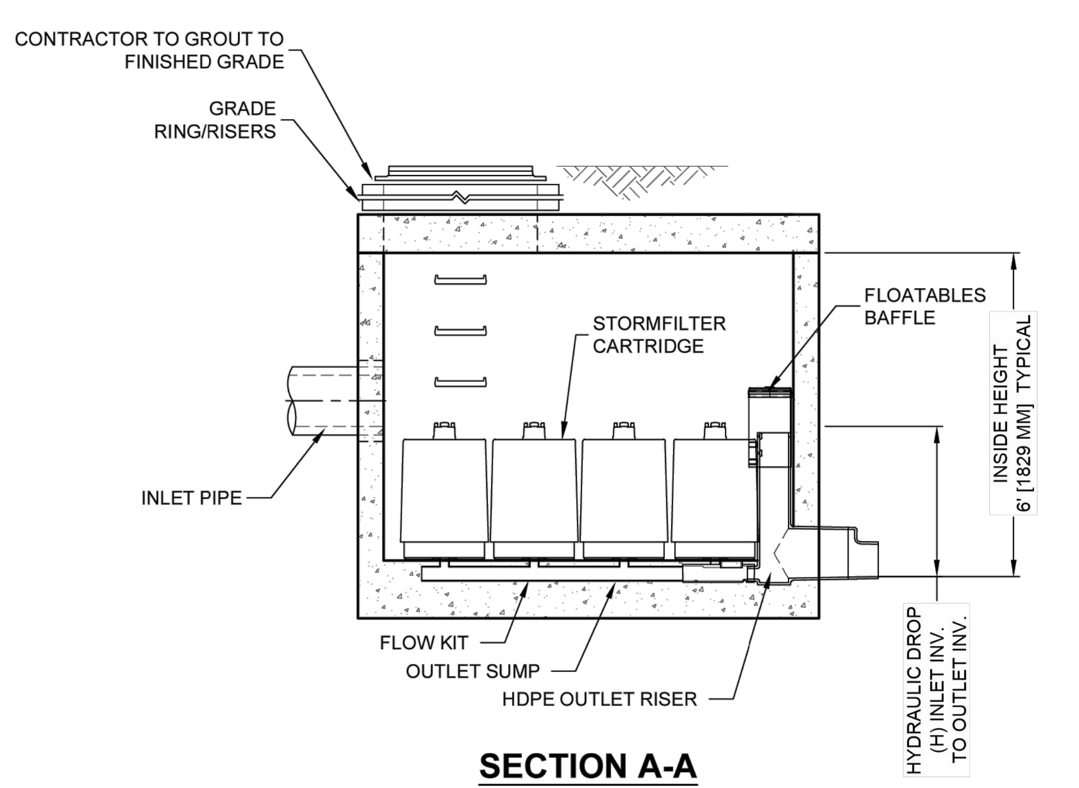
Date: 7.9.2025



PLAN VIEW
STANDARD OUTLET RISER
FLOWKIT: 43A



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.



SECTION A-A

The Stormwater Management StormFilter®

THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS; RELATED FOREIGN PATENTS, OR OTHER PATENTS PENDING.

STORMFILTER DESIGN NOTES

STORMFILTER TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. THE STANDARD MANHOLE STYLE IS SHOWN WITH THE MAXIMUM NUMBER OF CARTRIDGES (14). VOLUME SYSTEM IS ALSO AVAILABLE WITH MAXIMUM 14 CARTRIDGES. Ø8'-0" [2438 mm] MANHOLE STORMFILTER PEAK HYDRAULIC CAPACITY IS 1.8 CFS [51 L/s] . IF THE SITE CONDITIONS EXCEED 1.8 CFS [51 L/s] AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CARTRIDGE SELECTION

CARTRIDGE HEIGHT	27" [686 mm]			18" [458 mm]			LOW DROP		
RECOMMENDED HYDRAULIC DROP (H)	3.05' [930 mm]			2.3' [700 mm]			1.8' [550 mm]		
SPECIFIC FLOW RATE (gpm/sf) [L/s/m²]	2 [1.30]	1.67* [1.08]	1 [0.65]	2 [1.30]	1.67* [1.08]	1 [0.65]	2 [1.30]	1.67* [1.08]	1 [0.65]
CARTRIDGE FLOW RATE (gpm) [L/s]	22.5 [1.42]	18.79 [1.19]	11.25 [0.71]	15 [0.95]	12.53 [0.79]	7.5 [0.44]	10 [0.63]	8.35 [0.54]	5 [0.32]

* 1.67 gpm/sf [1.08 L/s/m²] SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB® (PSORB) MEDIA ONLY

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	*
WATER QUALITY FLOW RATE (cfs) [L/s]	*
PEAK FLOW RATE (cfs) [L/s]	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
CARTRIDGE HEIGHT (SEE TABLE ABOVE)	*
NUMBER OF CARTRIDGES REQUIRED	*
CARTRIDGE FLOW RATE	*
MEDIA TYPE (PERLITE, ZPG, PSORB)	*

PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE #1	*	*	*
INLET PIPE #2	*	*	*
OUTLET PIPE	*	*	*

RIM ELEVATION	*

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR SITE SPECIFIC DRAWINGS WITH DETAILED VAULT DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
4. STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS-20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' [1524 mm] AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
6. FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES [178 mm]. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 38 SECONDS.
7. SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) [L/s] DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft)[m²].
8. STORMFILTER STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET PIPE(S).
E. CONTRACTOR TO PROVIDE AND INSTALL CONNECTOR TO THE OUTLET RISER STUB. STORMFILTER EQUIPPED WITH A DUAL DIAMETER HDPE OUTLET STUB AND SAND COLLAR. IF OUTLET PIPE IS LARGER THAN 8 INCHES [200 mm], CONTRACTOR TO REMOVE THE 8 INCH [200 mm] OUTLET STUB AT MOLDED-IN CUT LINE. COUPLING BY FERNCO OR EQUAL AND PROVIDED BY CONTRACTOR.
F. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

CONTECH® ENGINEERED SOLUTIONS LLC
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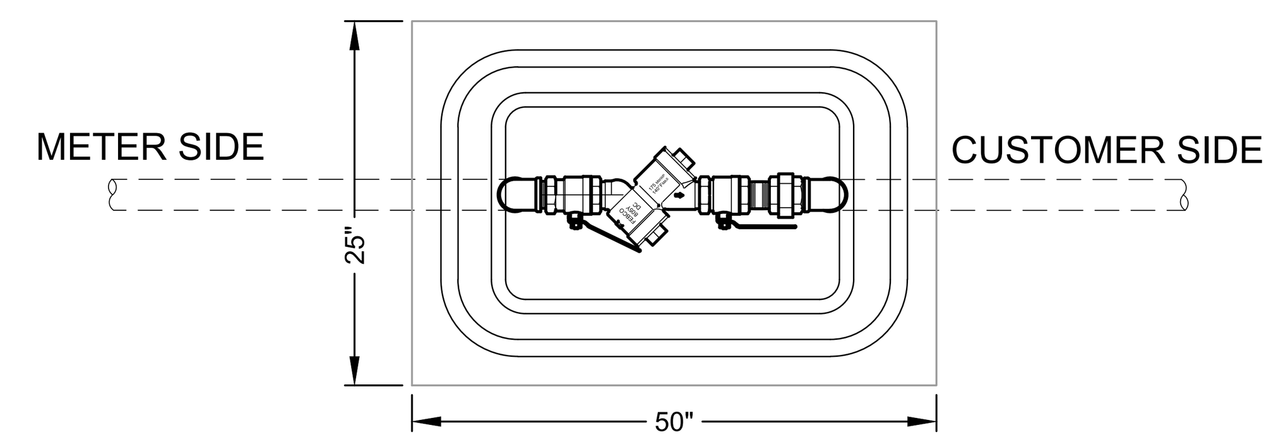
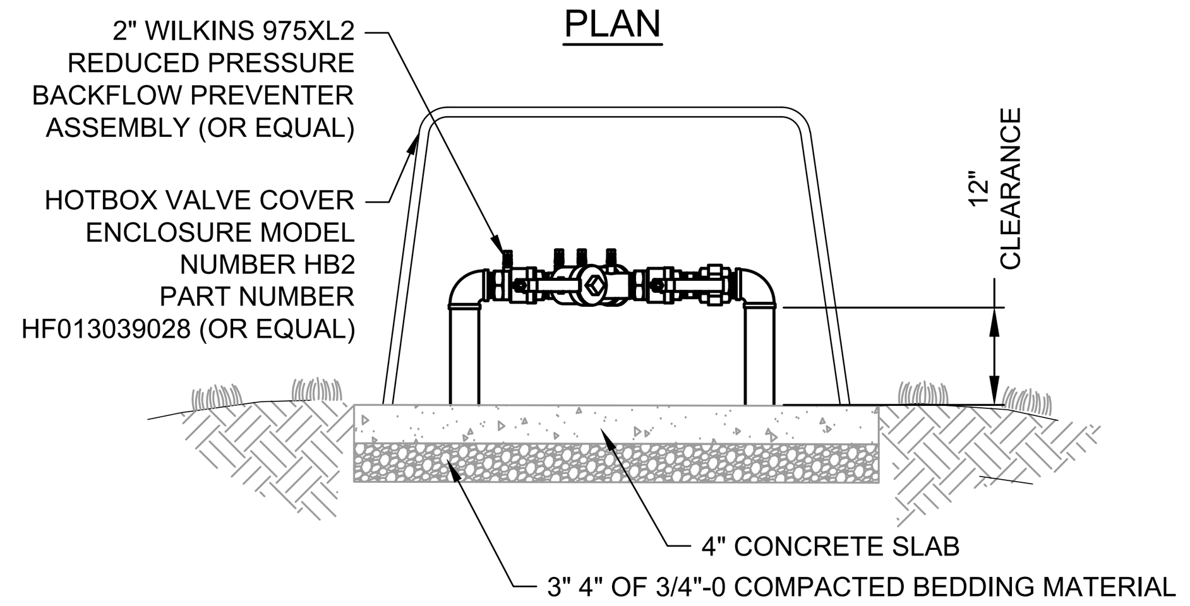
SFMH96
STORMFILTER
STANDARD DETAIL



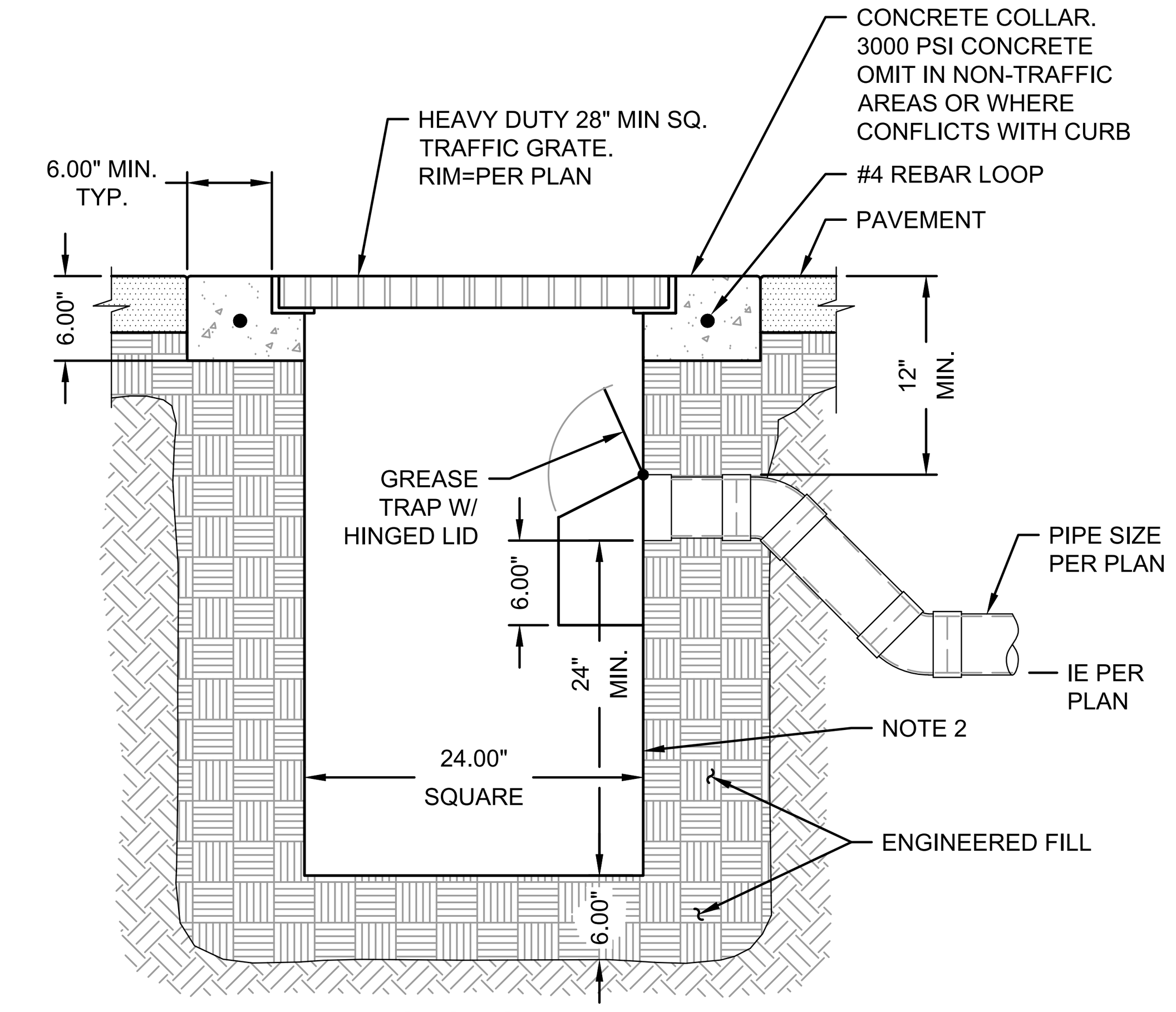
PLAN



ELEVATION

NOTE:
1. HOTBOX ENCLOSURE SHALL BE INSULATED AND HEATED. COORDINATE WITH ELECTRICAL PLANS FOR CONNECTION.
2. RPBA SHALL BE ACCESSIBLE BY VERTICALLY LIFTING OFF ENCLOSURE. CONTRACTOR TO VERIFY ACCESSIBILITY PRIOR TO CONSTRUCTION.

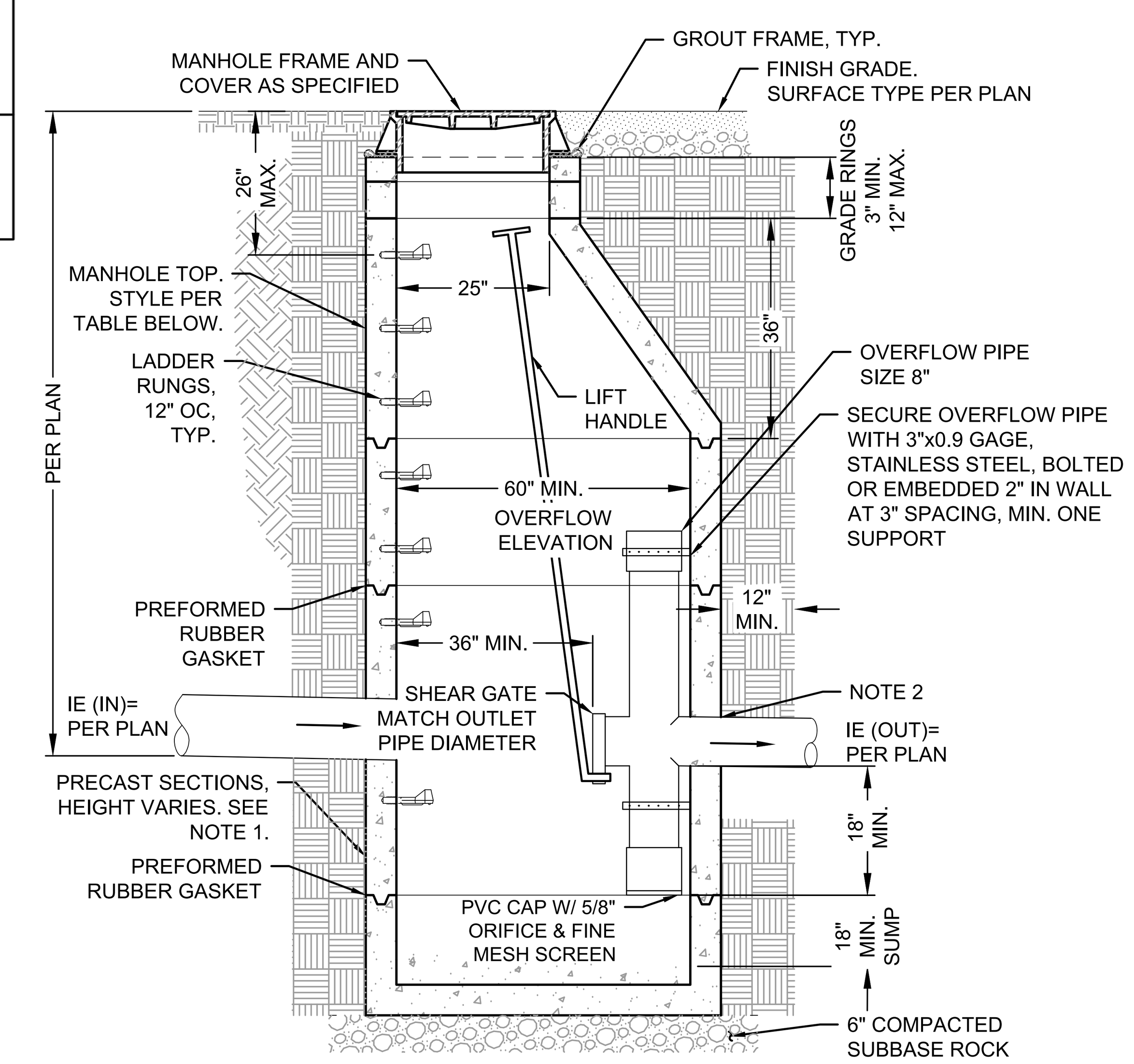
10 REDUCED PRESSURE BACKFLOW ASSEMBLY
SCALE: NTS



SECTION

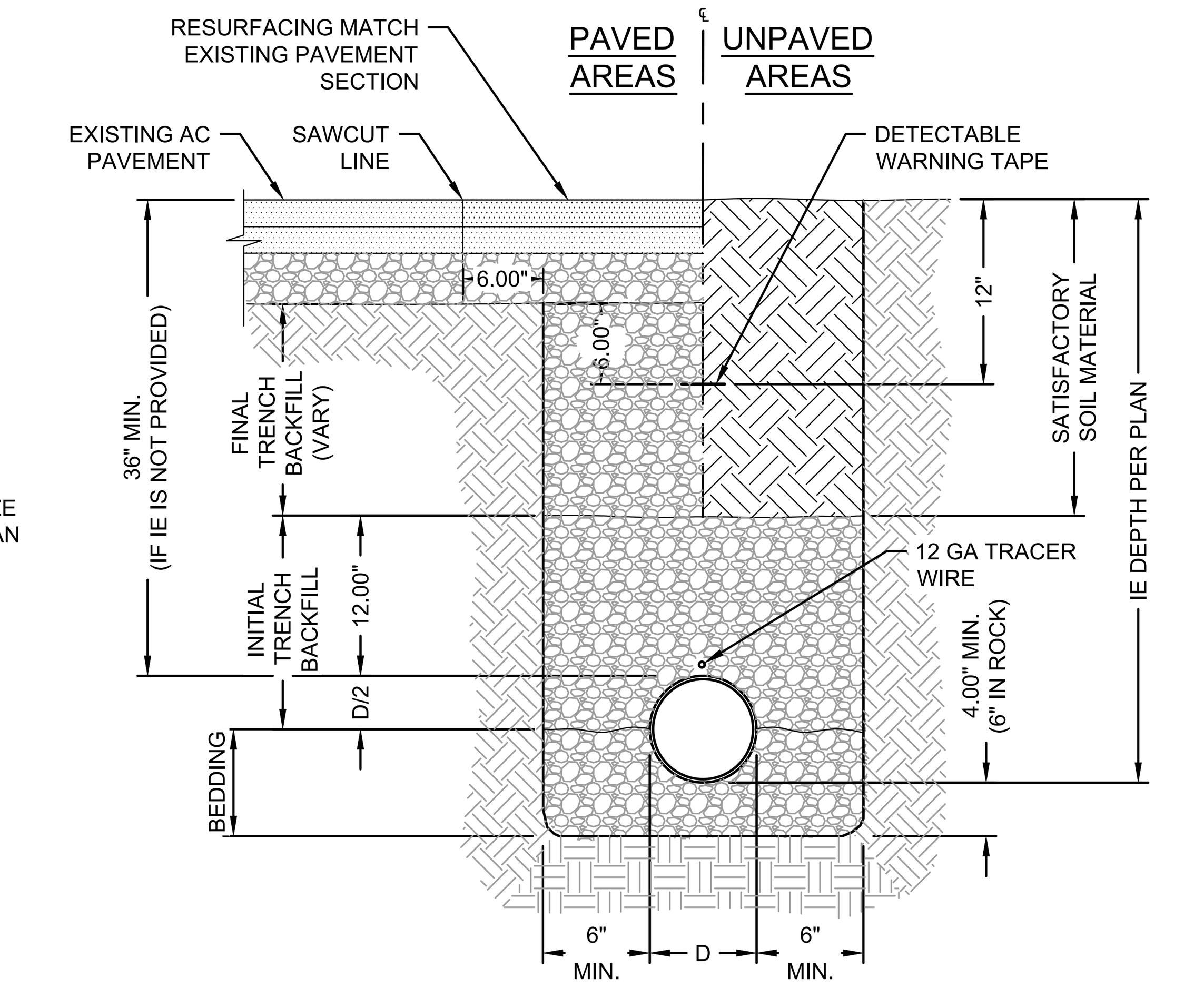
NOTES:
1. CONTRACTOR TO WIDEN EXCAVATION AS REQUIRED TO OBTAIN COMPACTION WITH CONTRACTORS COMPACTION EQUIPMENT.
2. 1/4" STEEL PLATE, BITUMINOUS COATED. AS MANUFACTURED BY GIBSON STEEL BASINS OR APPROVED EQUAL.

X TRAPPED CATCH BASIN
SCALE: NTS

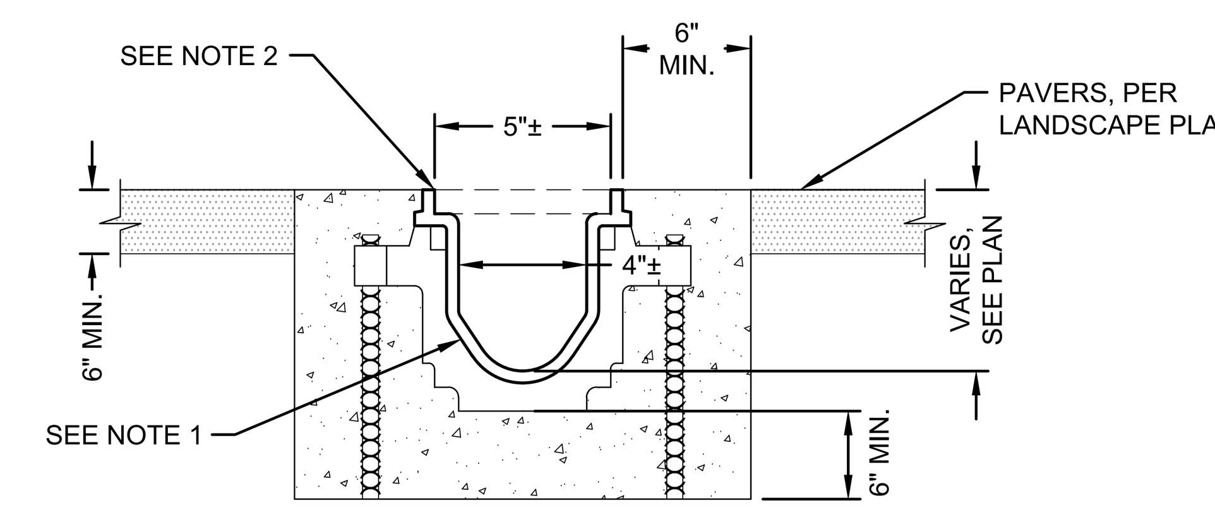


NOTES:
1. ALL PRECAST SECTIONS SHALL CONFORM TO REQUIREMENTS OF ASTM C-478.
2. ALL CONNECTING PIPES SHALL HAVE FLEXIBLE, GASKETED AND UNRESTRAINED JOINT WITHIN 18" OF MANHOLE VAULT. PIPE SIZES NOTED ON PLANS. PIPE CONNECTION TO MANHOLES SHALL HAVE KOR-N-SEAL BOOT OR APPROVED EQUAL.
3. ORIFICE AND OVERFLOW ELEVATIONS ARE RELATIVE TO IE (OUT)

6 FLOW CONTROL MANHOLE
SCALE: NTS



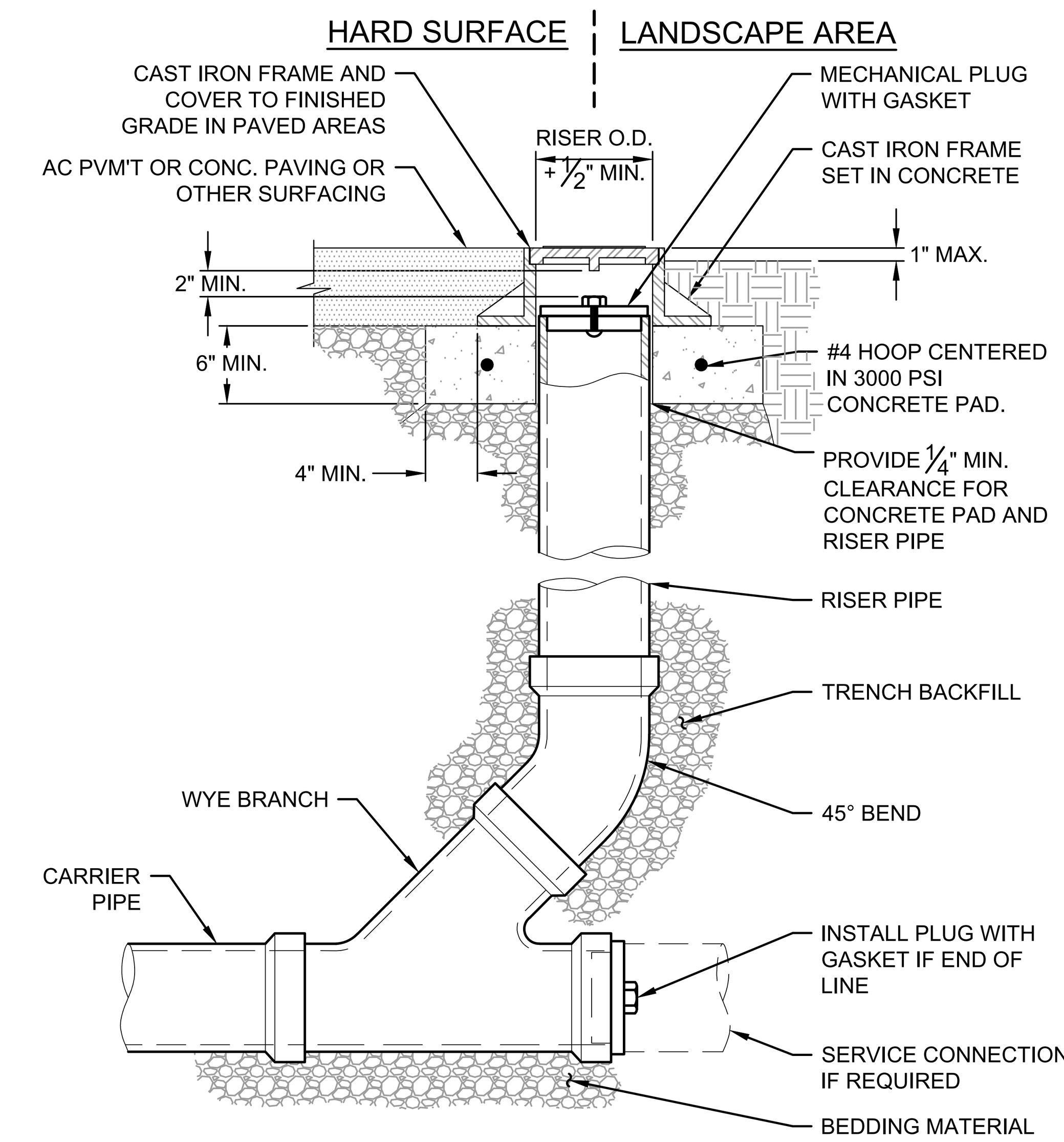
X TYPICAL PIPE BEDDING AND BACKFILL
SCALE: NTS



SECTION

NOTES:
1. TRENCH DRAIN SHALL BE PRE-SLOPED 4" WIDE ZURN OR ACO TRENCH DRAIN OR APPROVED EQUAL.
2. TRENCH DRAINS GRATE SHALL BE LOCKABLE HEAVY DUTY TRENCH GRATE - CLASS C.
3. TRENCH SYSTEM SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.

X TRENCH DRAIN - 4 INCH WIDE
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.

X STANDARD CLEANOUT (COTG)
SCALE: NTS

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REGISTERED PROFESSIONAL ENGINEER OREGON
PRELIMINARY NOT FOR CONSTRUCTION
RENEWS: 12/31/

KAADY CAR WASH
WEST LINN, OREGON

Δ Revisions

LAND-USE SET

DETAILS

Project # 22005

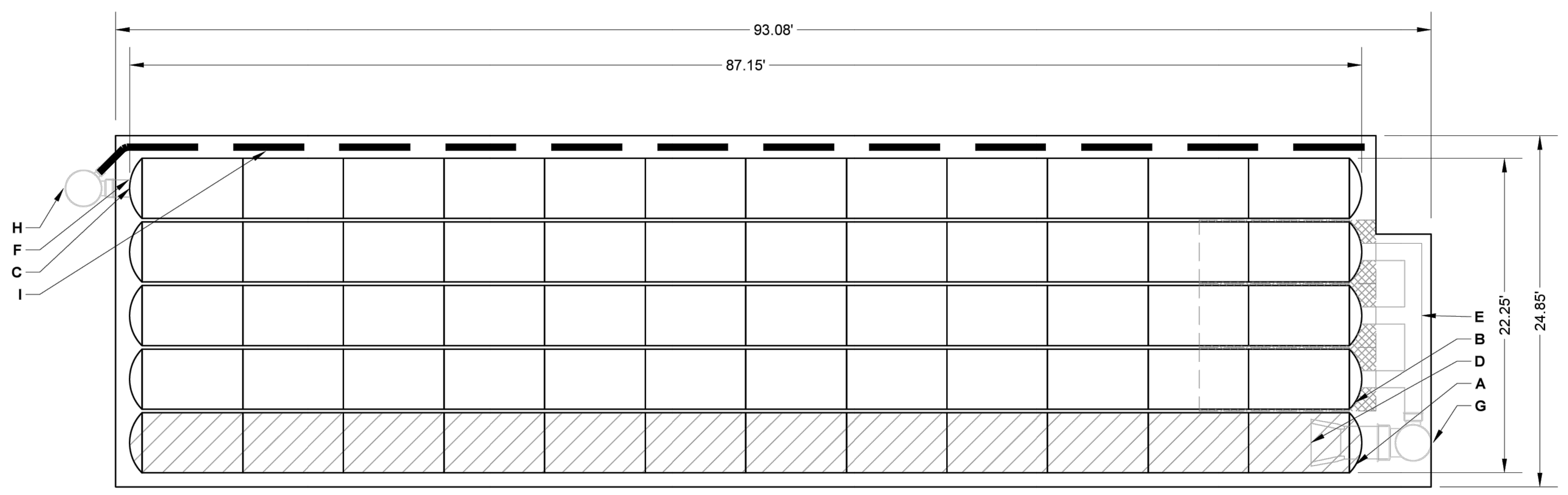
C5.1

Date: 7.9.2025

	PROPOSED LAYOUT	PROPOSED ELEVATIONS	
60	STORMTECH SC-800 CHAMBERS	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED):	111.25
10	STORMTECH SC-800 END CAPS	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC):	105.00
6	STONE ABOVE (in)	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC):	104.50
6	STONE BELOW (in)	MINIMUM ALLOWABLE GRADE (TOP OF RIGID CONCRETE PAVEMENT):	104.50
40	STONE VOID	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT):	104.50
5272	INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED) (COVER STONE INCLUDED) (BASE STONE INCLUDED)	TOP OF STONE:	103.75
		TOP OF SC-800 CHAMBER:	103.25
		12" x 12" TOP MANIFOLD INVERT:	101.70
		24" ISOLATOR ROW PLUS INVERT:	100.69
2286	SYSTEM AREA (SF)	12" BOTTOM CONNECTION INVERT:	100.63
235.9	SYSTEM PERIMETER (ft)	BOTTOM OF SC-800 CHAMBER:	100.50
423	THERMOPLASTIC LINER (SY) (20% OVERAGE)	UNDERDRAIN INVERT:	100.00
		BOTTOM OF STONE:	100.00

*INVERT ABOVE BASE OF CHAMBER

PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT*	MAX FLOW
PREFABRICATED EZ END CAP	A	24" BOTTOM PREFABRICATED EZ END CAP, PART#: SC800ECEZ / TYP OF ALL 24" BOTTOM CONNECTIONS AND ISOLATOR PLUS ROWS	2.30"	
PRE-CORED END CAP	B	12" TOP PRE-CORED END CAP, PART#: SC800EPE12TPC / TYP OF ALL 12" TOP CONNECTIONS	14.40"	
PRE-CORED END CAP	C	12" BOTTOM PRE-CORED END CAP, PART#: SC800EPE12BPC / TYP OF ALL 12" BOTTOM CONNECTIONS	1.60"	
FLAMP	D	INSTALL FLAMP ON 24" ACCESS PIPE / PART#: SC80024RAMP		
MANIFOLD	E	12" x 12" TOP MANIFOLD, ADS N-12	14.40"	
PIPE CONNECTION	F	12" BOTTOM CONNECTION	1.60"	
NYLOPLAST (INLET W/ ISO PLUS ROW)	G	30" DIAMETER (24.00" SUMP MIN)		5.9 CFS IN
NYLOPLAST (OUTLET)	H	30" DIAMETER (DESIGN BY ENGINEER)		2.0 CFS OUT
UNDERDRAIN	I	6" ADS N-12 DUAL WALL PERFORATED HDPE UNDERDRAIN		



ISOLATOR ROW PLUS (SEE DETAIL)

PLACE MINIMUM 12.50' OF ADSPLUS625 WOVEN GEOTEXTILE OVER BEDDING STONE AND UNDERNEATH CHAMBER FEET FOR SCOUR PROTECTION AT ALL CHAMBER INLET ROWS

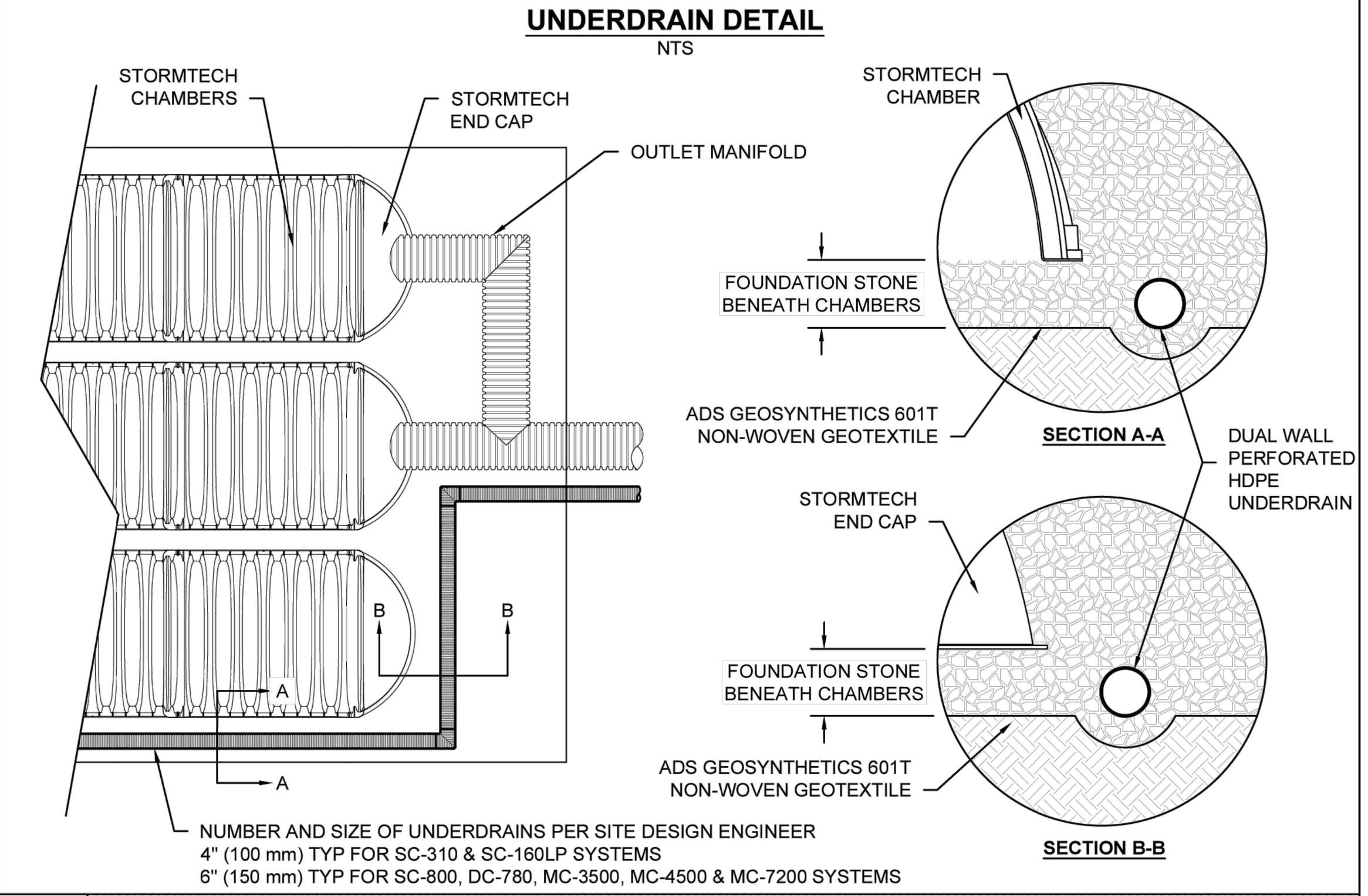
THERMOPLASTIC LINER (SEE TECH NOTE #6.50 PROVIDED BY OTHERS / DESIGN BY OTHERS)

NOTES

- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- **NOT FOR CONSTRUCTION**: THIS LAYOUT IS FOR DIMENSIONAL PURPOSES ONLY TO PROVE CONCEPT & THE REQUIRED STORAGE VOLUME CAN BE ACHIEVED ON SITE.

UNDERDRAIN DETAIL

NTS

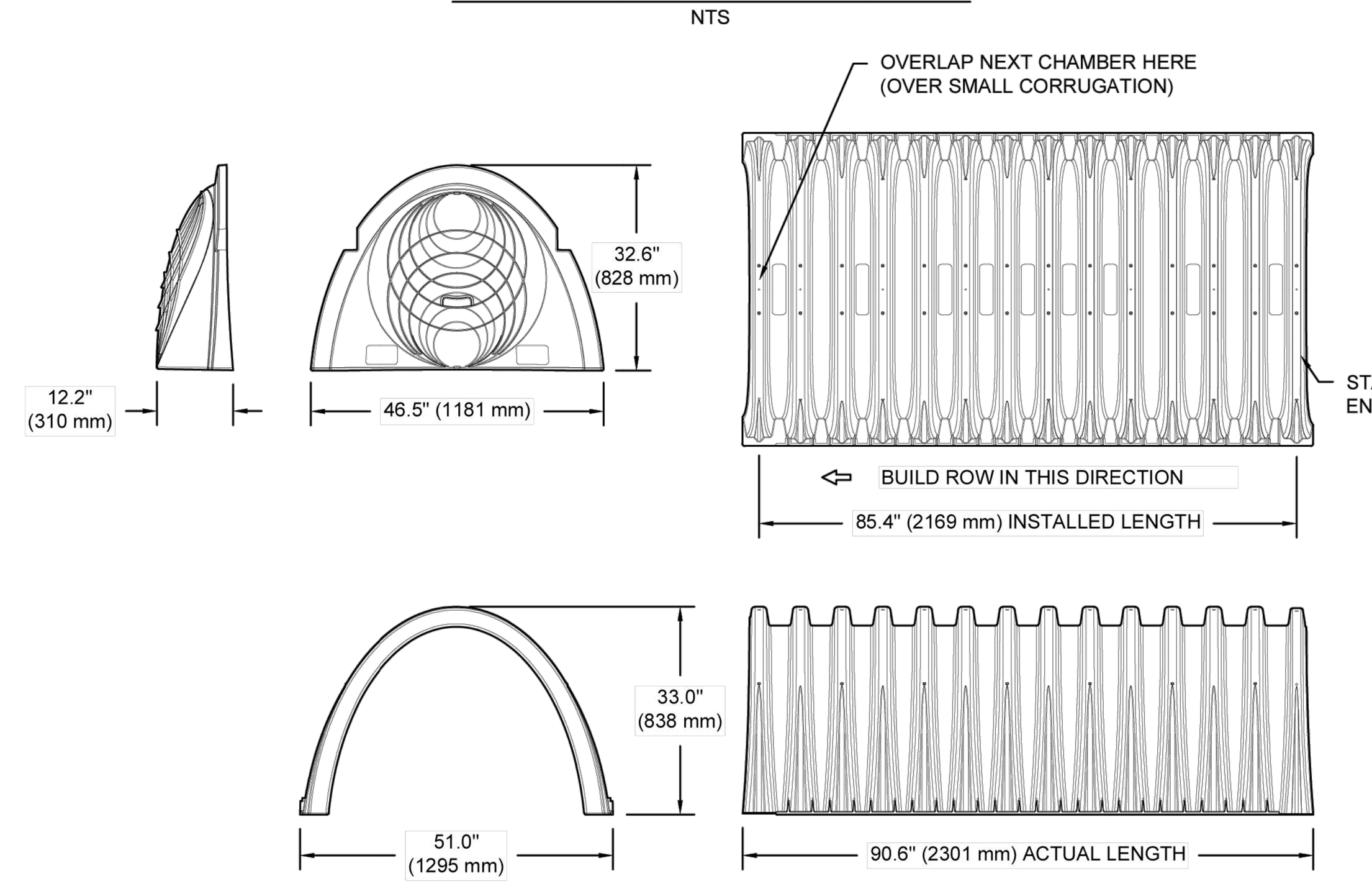


4 UNDERDRAIN DETAIL

SPACE INTENTIONALLY LEFT BLANK

SC-800 TECHNICAL SPECIFICATION

NTS



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	51.0" X 33.0" X 85.4"	(1295 mm X 838 mm X 2169 mm)
CHAMBER STORAGE	50.6 CUBIC FEET	(1.43 m³)
MINIMUM INSTALLED STORAGE*	78.4 CUBIC FEET	(2.22 m³)
WEIGHT	81.8 lbs.	(37.1 kg)

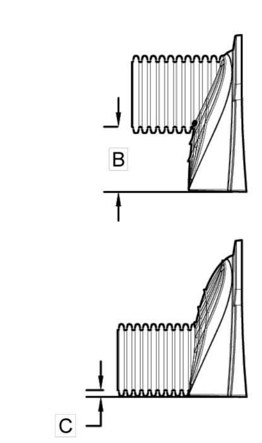
NOMINAL END CAP SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	46.5" X 32.6" X 10.5"	(1181 mm X 828 mm X 267 mm)
END CAP STORAGE	3.4 CUBIC FEET	(0.09 m³)
MINIMUM INSTALLED STORAGE**	14.7 CUBIC FEET	(0.42 m³)
WEIGHT	15.7 lbs.	(7.1 kg)

* ASSUMES 6" (150 mm) STONE ABOVE, BELOW, AND BETWEEN CHAMBERS, 3" (75 mm) BETWEEN CHAMBERS
**ASSUMES 6" (150 mm) STONE ABOVE AND BELOW END CAPS, 3" (150 mm) BETWEEN ROWS, 12" (300 mm) BEYOND END CAPS

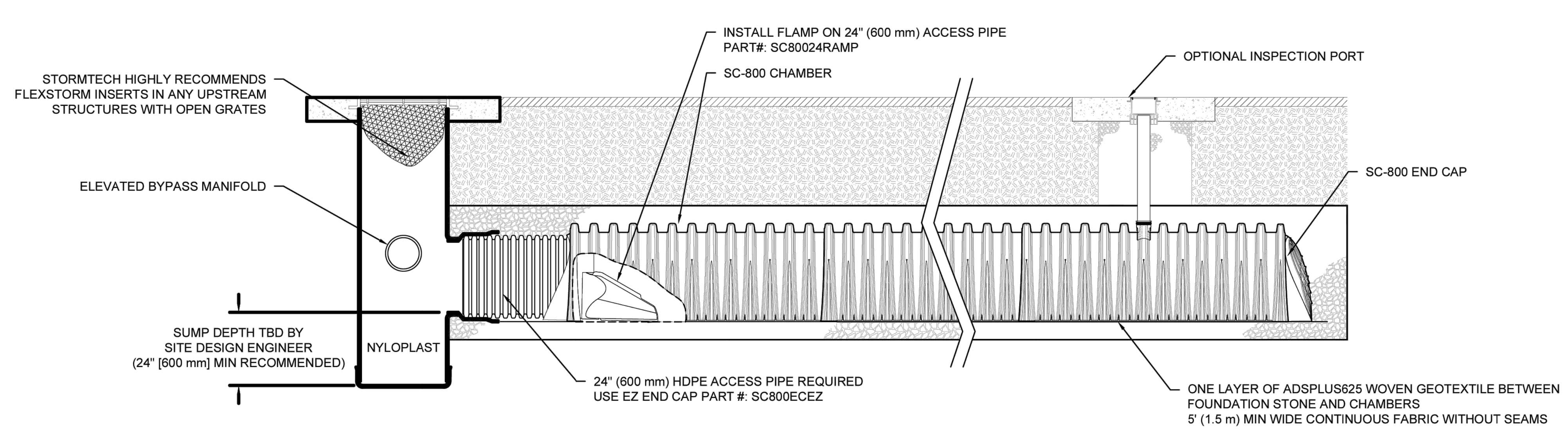
PRE-CORED HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "BPC"
PRE-CORED HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "TPC"

PART #	STUB	B	C
SC800EPE06TPC	6" (150 mm)	21.4" (544 mm)	---
SC800EPE06BPC		---	0.9" (23 mm)
SC800EPE08TPC	8" (200 mm)	19.2" (488 mm)	---
SC800EPE08BPC		---	1.0" (25 mm)
SC800EPE10TPC	10" (250 mm)	17.0" (432 mm)	---
SC800EPE10BPC		---	1.2" (30 mm)
SC800EPE12TPC	12" (300 mm)	14.4" (366 mm)	---
SC800EPE12BPC		---	1.6" (41 mm)
SC800EPE15TPC	15" (375 mm)	11.3" (287 mm)	---
SC800EPE15BPC		---	1.7" (43 mm)
SC800EPE18TPC	18" (450 mm)	8.0" (203 mm)	---
SC800EPE18BPC		---	2.0" (51 mm)
SC800EPE24BPC	24" (600 mm)	---	2.3" (58 mm)
SC800EPE	NONE	SOLID END CAP	



NOTE: ALL DIMENSIONS ARE NOMINAL

2 SC-800 TECHNICAL SPECIFICATION



SC-800 ISOLATOR ROW PLUS DETAIL

NTS

3 SC-800 ISOLATOR ROW PLUS DETAIL

SPACE INTENTIONALLY LEFT BLANK

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

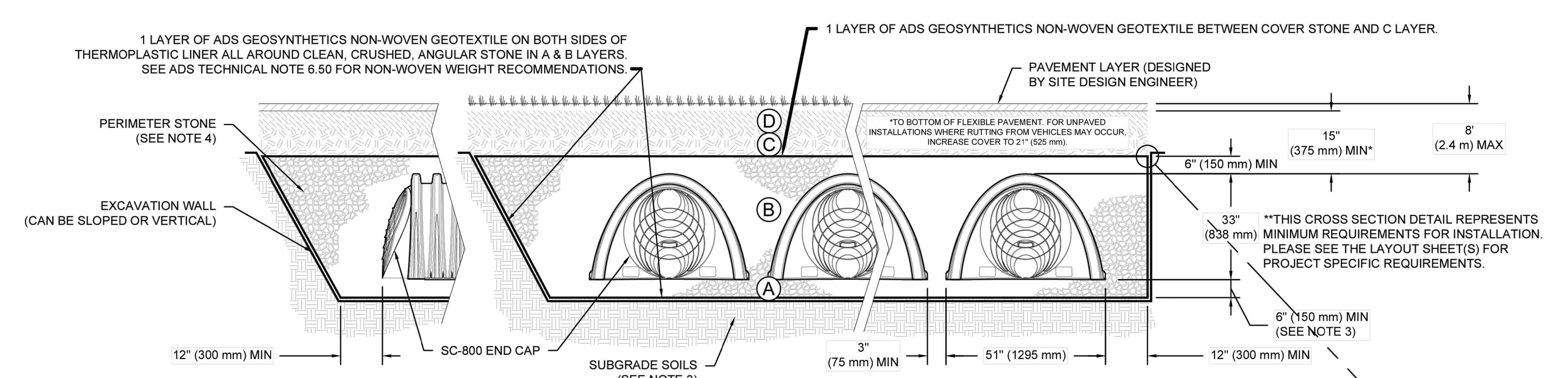
NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

ACCEPTABLE FILL MATERIALS: STORMTECH SC-800 CHAMBER SYSTEMS

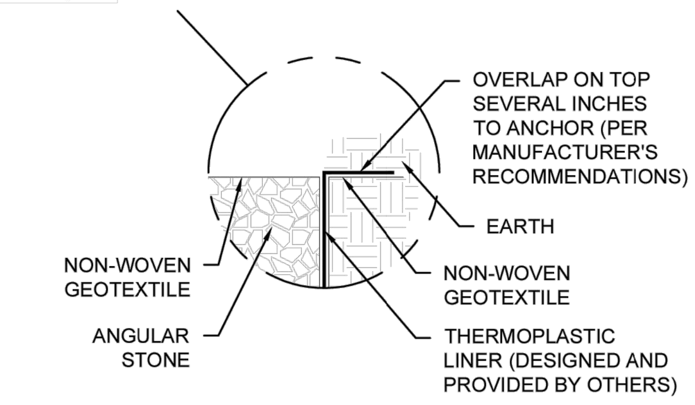
MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 15" (375 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[5]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[5]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.
5. WHERE RECYCLED CONCRETE AGGREGATE IS USED IN LAYERS 'A' OR 'B' THE MATERIAL SHOULD ALSO MEET THE ACCEPTABILITY CRITERIA OUTLINED IN TECHNICAL NOTE 6.20 "RECYCLED CONCRETE STRUCTURAL BACKFILL".



NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-800 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS. REFERENCE STORMTECH DESIGN MANUAL FOR BEARING CAPACITY GUIDANCE.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 750 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.



THERMOPLASTIC LINER DETAIL

1 SC-800 CROSS SECTION DETAIL

DATE: 07/25/2025
PROJECT #:
NOT TO SCALE
DRAWN: CC
CHECKED: N/A
REV:

25-C007 KAADY
WEST LINN, OR, USA

StormTech® Chamber System

ADS
4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

SHEET 1 OF 1

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REGISTERED PROFESSIONAL ENGINEER OREGON — PRELIMINARY NOT FOR CONSTRUCTION
RENEWS: 12/31/

KAADY CAR WASH
WEST LINN, OREGON

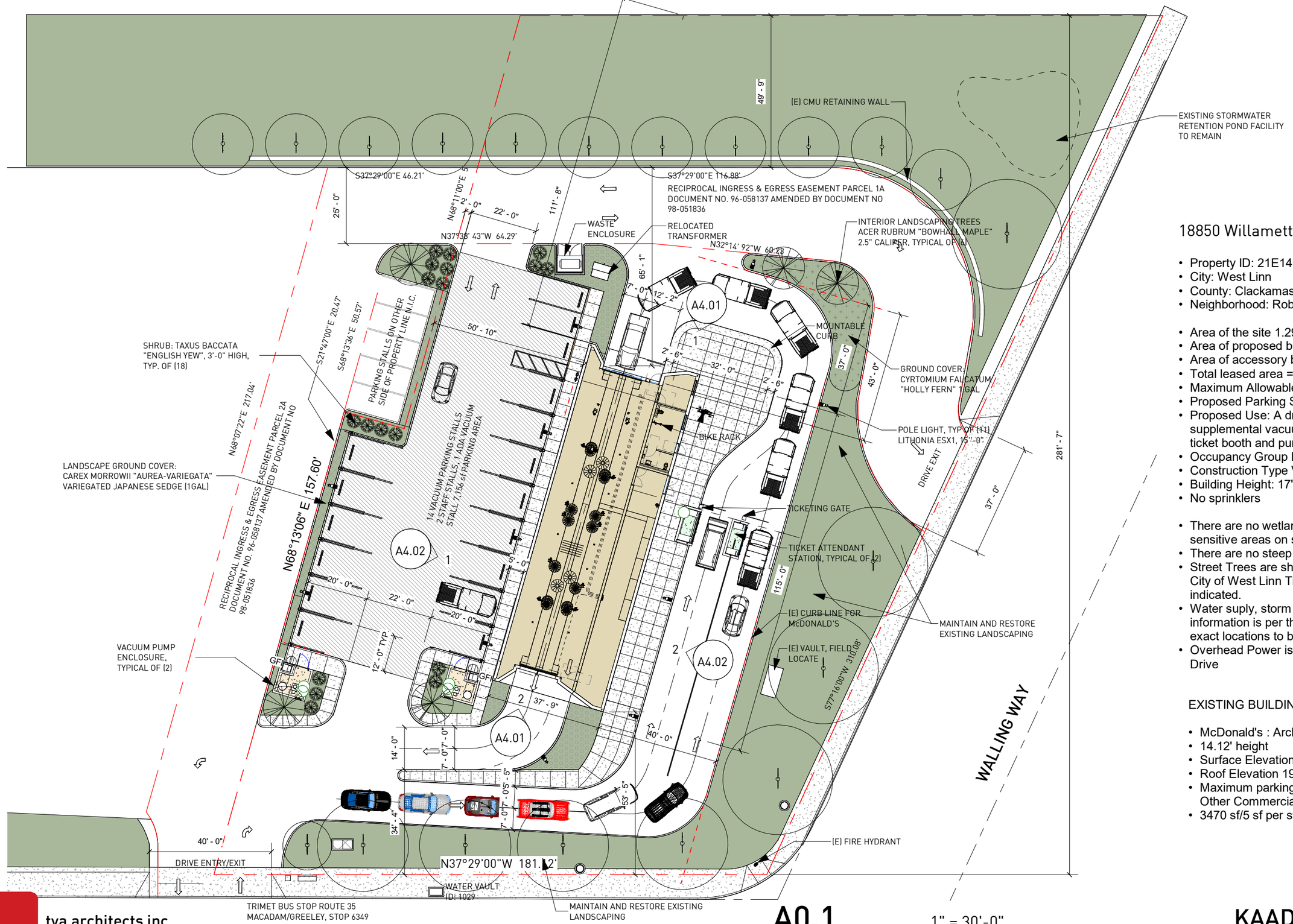
Revisions

LAND-USE SET
DETAILS

Project # 22005

C5.2

Date: 7.9.2025



18850 Willamette Drive

- Property ID: 21E14DD-6900
- City: West Linn
- County: Clackamas
- Neighborhood: Robinwood

- Area of the site 1.29 Acres (56,378 sf)
- Area of proposed building: 3,190 sf
- Area of accessory buildings: 280 sf
- Total leased area = 3470 sf
- Maximum Allowable Parking Spaces = 17
- Proposed Parking Spaces = 17
- Proposed Use: A drive-through car wash with supplemental vacuum cleaning stations. Auxiliary ticket booth and pumphouse enclosures provided.
- Occupancy Group B
- Construction Type VB
- Building Height: 17'-8"
- No sprinklers

- There are no wetlands, riparian, or environmentally sensitive areas on site.
- There are no steep slopes on site.
- Street Trees are shown but not identified on the City of West Linn Tree Inventory Map. Species not indicated.
- Water suply, storm drain, and sanitary sewer information is per the West Linn City Maps site, exact locations to be provided by survey.
- Overhead Power is on the other side of Willamette Drive

EXISTING BUILDING

- McDonald's : Archland Property LLC 3948 sf
- 14.12' height
- Surface Elevation 180.3637'
- Roof Elevation 194.4824'
- Maximum parking per 1000 sf for Other Commercial Uses: 5
- 3470 sf/5 sf per stall = 17.35 spaces, 17 provided

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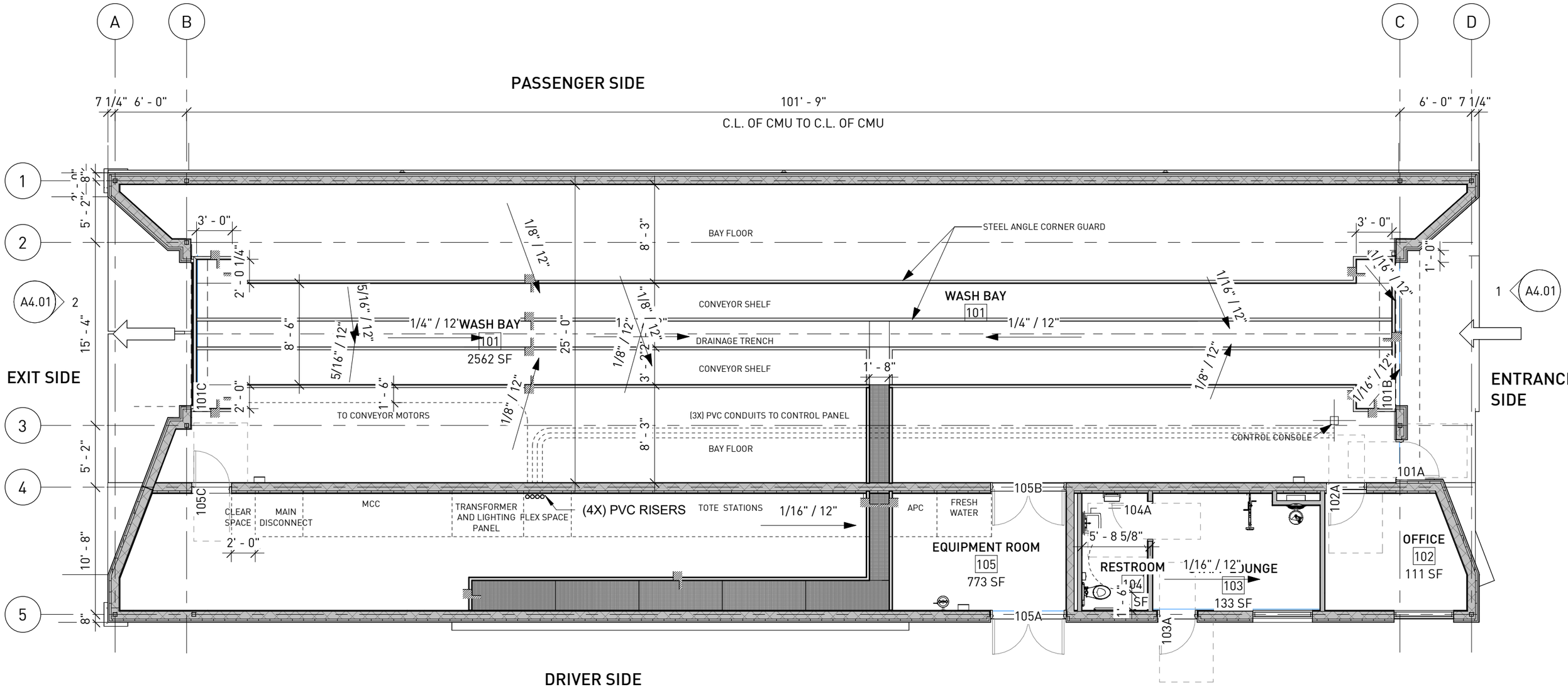
A0.1
SITE PLAN

1" = 30'-0"

07/22/25

KAADY CAR WASH

18850 WILLAMETTE DRIVE, WEST LINN, OREGON 97068



DRIVER SIDE

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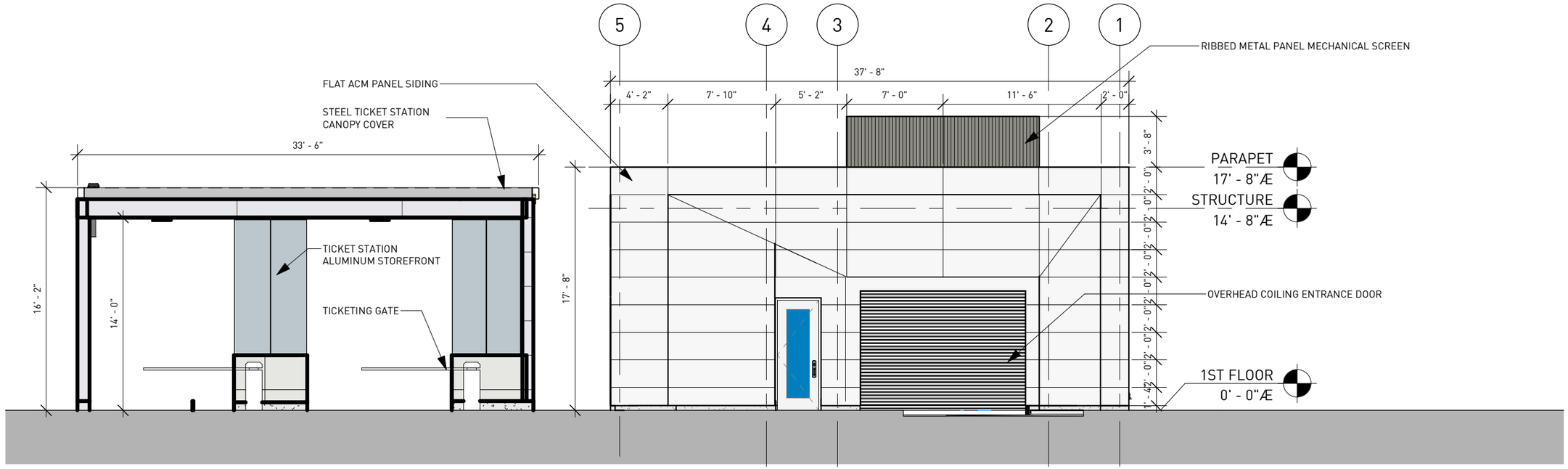
A1
FLOOR PLAN

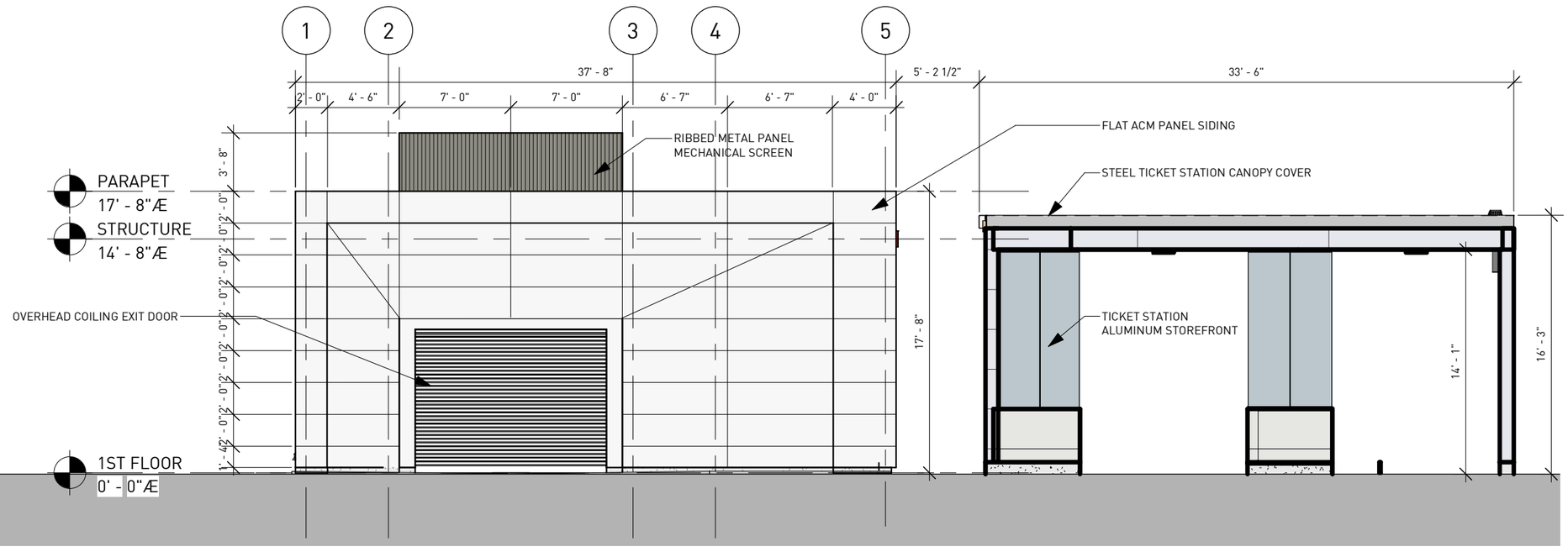
1/8" = 1'-0"
07/23/25

KAADY CAR WASH
18850 WILLAMETTE DRIVE, WEST LINN, OREGON 97068



1 ENTRANCE ELEVATION 1/8"

1/8" = 1'-0"



2 EXIT ELEVATION 1/8"

1/8" = 1'-0"

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A4.1

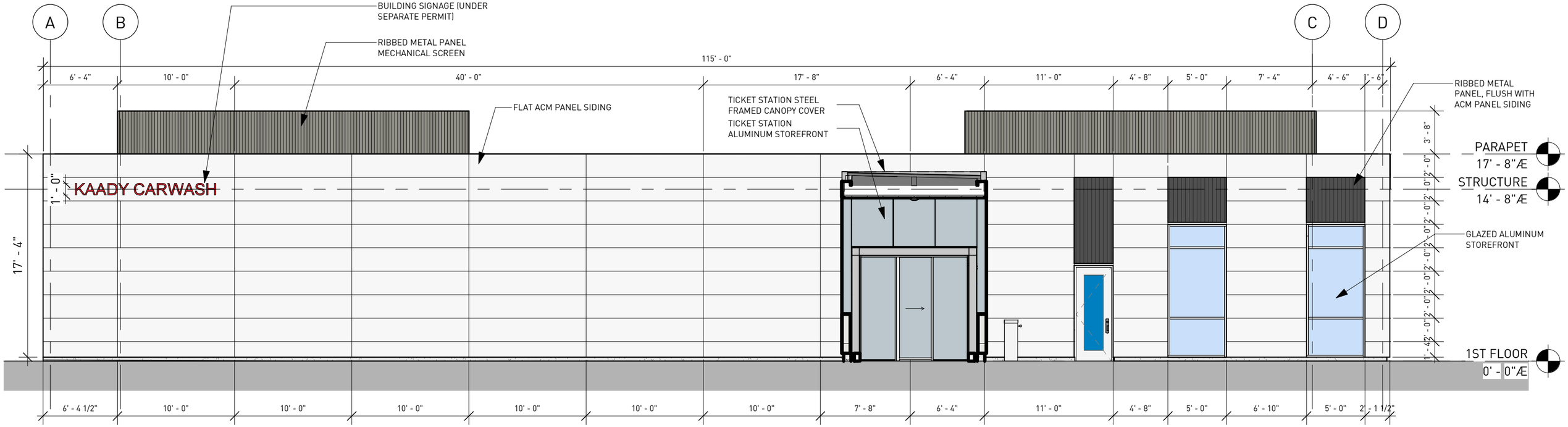
EXTERIOR ELEVATIONS

1/8" = 1'-0"

07/23/25

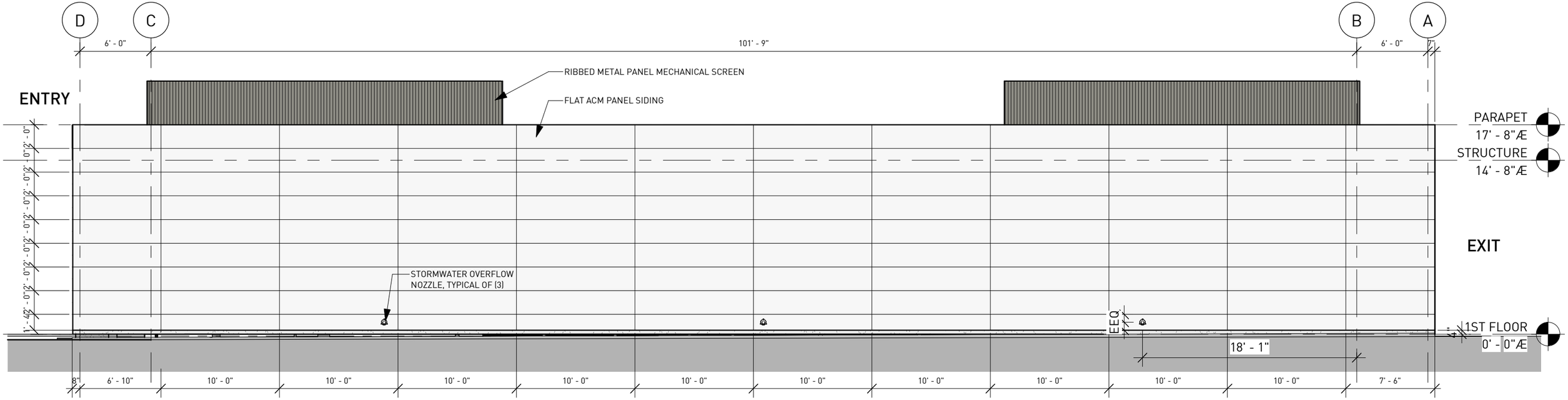
KAADY CAR WASH

18850 WILLAMETTE DRIVE, WEST LINN, OREGON 97068



1 DRIVER'S SIDE ELEVATION

1/8" = 1'-0"



2 PASSENGER'S SIDE ELEVATION

1/8" = 1'-0"

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A4.2

EXTERIOR ELEVATIONS

1/8" = 1'-0"

07/23/25

KAADY CAR WASH

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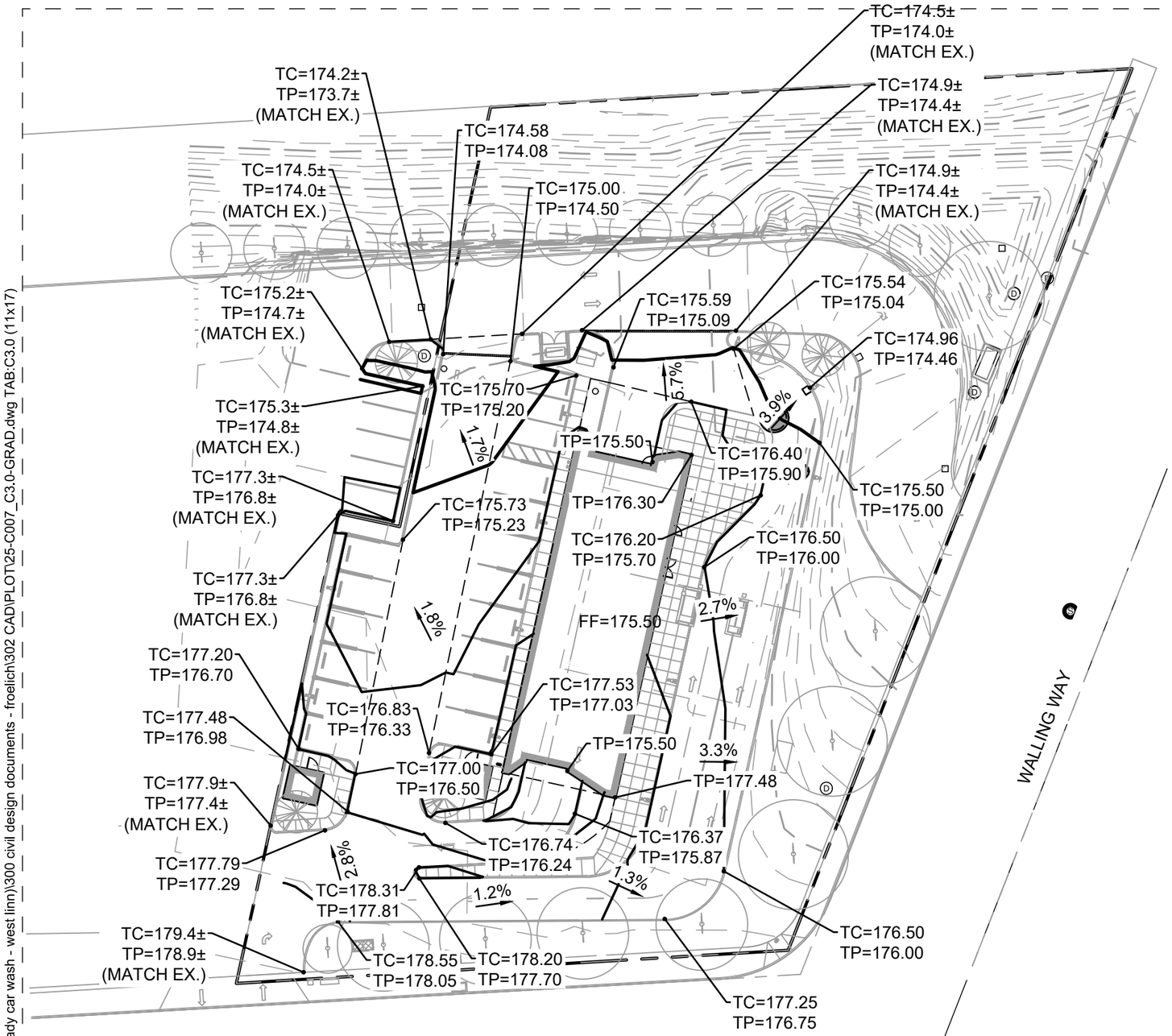

SHEET NOTES &

1. SLOPES PROVIDED ON SLOPE ARROW ARE FOR REFERENCE ONLY.
2. LANDINGS ON ACCESSIBLE ROUTES SHALL NOT EXCEED 1.5% IN ANY DIRECTION.
3. ALL ACCESSIBLE ROUTES SHALL COMPLY WITH CURRENT ADA ACCESSIBILITY GUIDELINES FOR BUILDING AND FACILITIES (ADAAG).
4. 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.
5. TOP OF CONCRETE OUTSIDE DOOR = FF ELEV. MINUS 0.02' SLOPE LANDING 1.5% AWAY FROM BLDG.

LABEL LEGEND

CALLOUT	DESCRIPTION
X.X% →	GRADING SLOPE AND DIRECTION (DOWNHILL)

SPOT ELEVATION — DESCRIPTION LISTED BELOW. NO DESCRIPTION MEANS TP OR TG

XX.XX XX

BOS	BOTTOM OF SWALE
BOW	BACK OF WALK
BS	BOTTOM OF STEP
BW	BOTTOM OF WALL
EG	EXISTING GRADE
FF	FINISHED FLOOR
FL	FLOW LINE
G	GUTTER
HP	HIGH POINT
LP	LOW POINT
RIM	RIM OF STRUCTURE
TC	TOP OF CURB
TG	TOP OF GROUND
TP	TOP OF PAVEMENT
TS	TOP OF STEP
TW	TOP WALL

- GRADE BREAK
- 49 — EX. CONTOUR MINOR
- 50 — EX. CONTOUR MAJOR
- 49 — CONTOUR MINOR (FG)
- 50 — CONTOUR MAJOR (FG)

N

SCALE 1 INCH = 40 FEET

40 0 40 80

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Plotted: 7/31/25 at 4:15pm By: atomlinson

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C3.0
GRADING PLAN

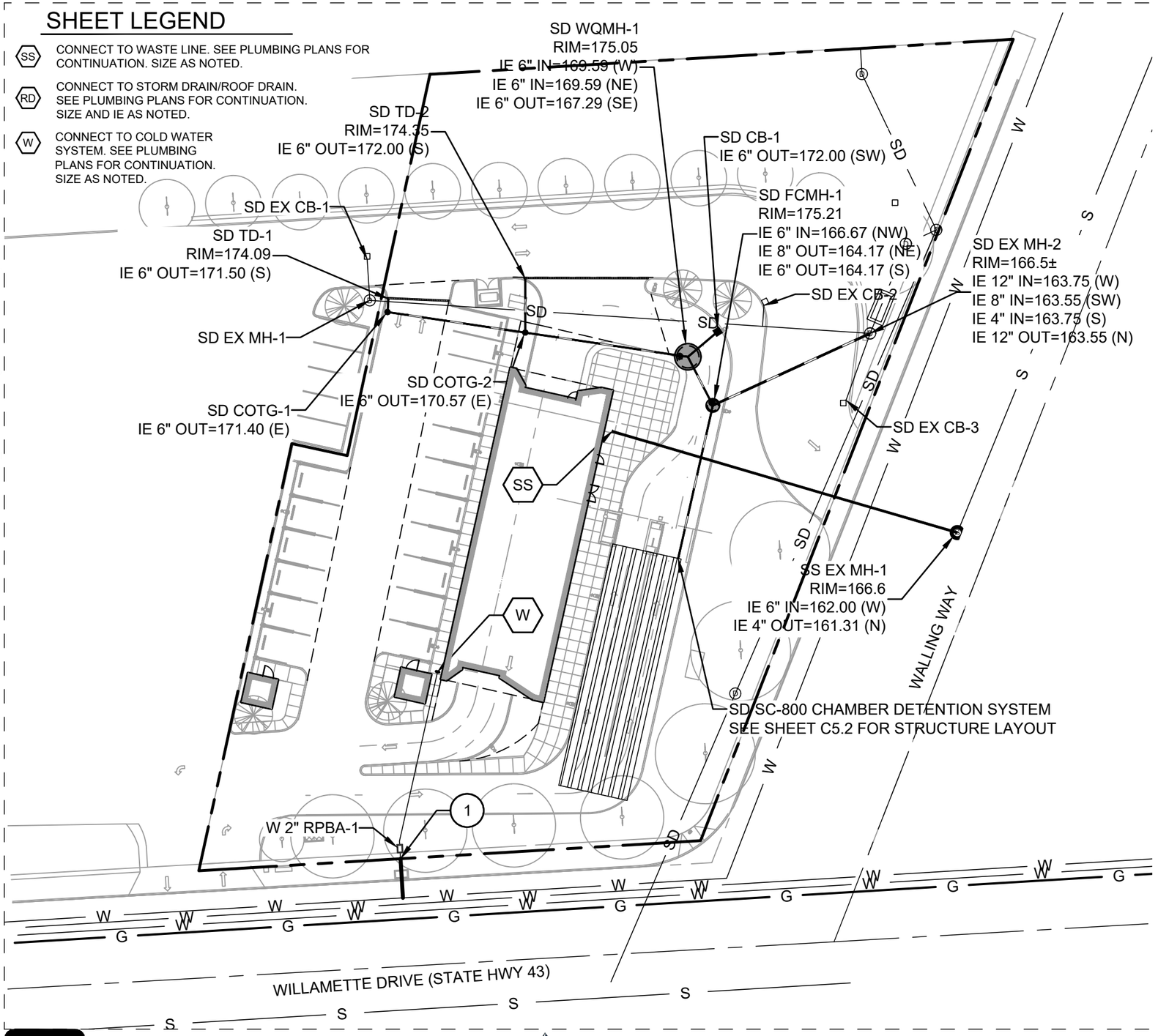
KAADY CAR WASH - WEST LINN
18850 WILLAMETTE DRIVE WEST LINN, OR

SHEET LEGEND

SS — CONNECT TO WASTE LINE. SEE PLUMBING PLANS FOR CONTINUATION. SIZE AS NOTED.

RD — CONNECT TO STORM DRAIN/ROOF DRAIN. SEE PLUMBING PLANS FOR CONTINUATION. SIZE AND IE AS NOTED.

W — CONNECT TO COLD WATER SYSTEM. SEE PLUMBING PLANS FOR CONTINUATION. SIZE AS NOTED.



SHEET NOTES

1. PIPE BEDDING AND BACKFILL FOR ALL UTILITIES SHALL BE DONE PER DETAIL X/C5.X.
2. STRUCTURES LOCATIONS ARE BASED ON CENTER OF STRUCTURE.
3. INSTALL TRUST BLOCK ON FIRE AND WATER LINES PER DETAIL X & X/CX.X.

KEY NOTES

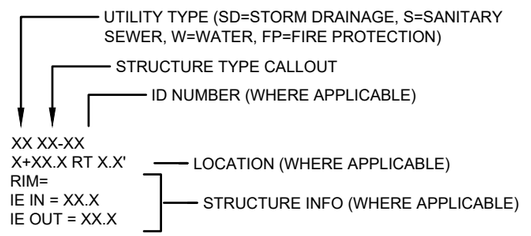
1 COORDINATE WATER SERVICE POINT OF CONNECTION TO EXISTING X" LATERAL WITH CITY OF WEST LINN.

2 FIELD VERIFY LOCATION AND IE OF EXISTING XX" XXXXX LATERAL PRIOR TO CONSTRUCTION.

3 IRRIGATION BACKFLOW ASSEMBLY VAULT, SEE LANDSCAPE PLANS.

UTILITY LABEL LEGEND

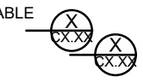
STRUCTURE LABEL



STRUCTURE TYPE

CALLOUT	DESCRIPTION
BEND	BEND, USE FITTING IF APPLICABLE
BWV	BACKWATER VALVE
CB	TRAPPED CATCH BASIN
CO	CLEANOUT TO GRADE
CONN	CONNECTION
DW	DRYWELL
FCMH	FLOW CONTROL MANHOLE
FD	FOUNDATION DRAINAGE POINT OF CONN.
FH	FIRE HYDRANT
GV	GATE VALVE
OF	OUTFALL
OV	OVERFLOW INLET
SDMH	48" DIA. STORM DRAIN MH
TD	TRENCH DRAIN
TEE	TEE CONNECTION
WYE	WYE CONNECTION
WQMH	WATER QUALITY MANHOLE

DETAIL REF.



N

SCALE 1 INCH = 40 FEET

40 0 40 80

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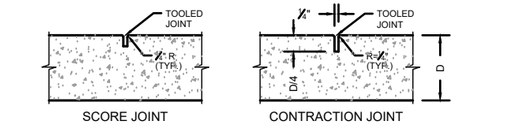
File: P:\2025\25-c007 (kaady car wash - west linn)\300 civil design documents - froelich\302 CAD\PLOT\25-C007_C4.0-UTIL.dwg TAB:C4.0 (11x17)

11X17B

C4.0
UTILITY PLAN

KAADY CAR WASH - WEST LINN

18850 WILLAMETTE DRIVE WEST LINN, OR



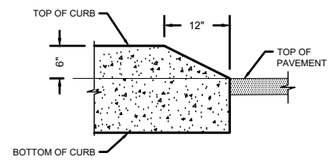
JOINT INTERVALS TABLE

TYPE	SPACING	OR AT ...
SCORE	5' TYP	LOCATIONS SHOWN ON PLANS
CONTRACTION	15' MAX	END OF RAMPS AND DRIVEWAYS
EXPANSION/ ISOLATION	200' *	POINTS OF TANGENCY AND AT ENDS OF EACH DRIVEWAY OR OTHER FIXED OBJECTS

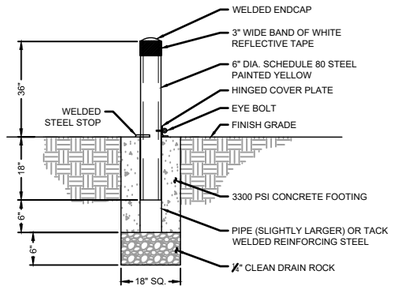
* MONOLITHIC CURB AND SIDEWALK SHALL BE 45' MAX

NOTES:
1. CONTRACTION JOINTS MAY BE USED IN PLACE OF SCORE JOINTS.
2. CONSTRUCTION COLD JOINTS MAY BE USED IN PLACE OF CONTRACTION JOINTS.
3. PROVIDE MEDIUM BROOM FINISH WITH NO TOOL MARKS.

X SIDEWALK JOINTS
SCALE: NTS

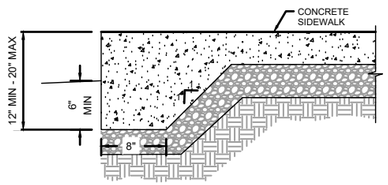


X CONCRETE CURB ENDING
SCALE: NTS

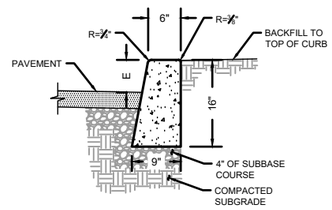


SECTION

X REMOVABLE PIPE BOLLARD
SCALE: NTS

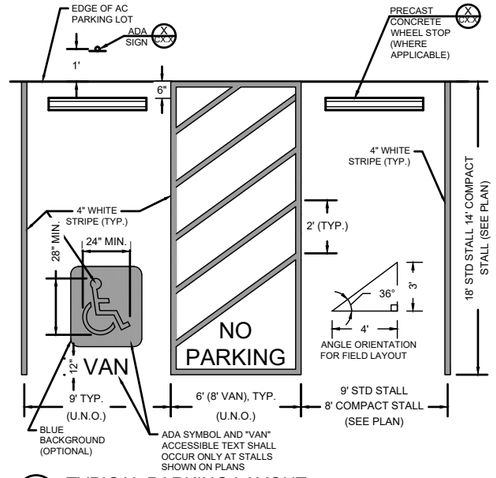


X THICKENED CONCRETE EDGE
SCALE: NTS

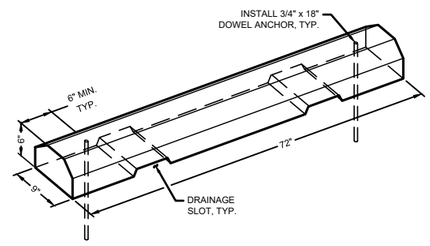


NOTES:
1. CURB EXPOSURE 'E' = 6", TYP. VARY AS SHOWN ON PLANS OR AS DIRECTED.
2. CONSTRUCT CONTRACTION JOINTS AT 15' MAX. SPACING AND AT RAMPS. CONSTRUCT EXPANSION JOINTS AT 200' MAX SPACING AT POINTS OF TANGENCY AND AT ENDS OF EACH DRIVEWAY.
3. TOPS OF ALL CURBS SHALL SLOPE TOWARD THE ROADWAY AT 2% UNLESS OTHERWISE SHOWN OR AS DIRECTED.
4. DIMENSIONS ARE NOMINAL AND MAY VARY TO CONFORM WITH CURB MACHINE AS APPROVED BY THE ENGINEER.

X STANDARD CONCRETE CURB
SCALE: NTS

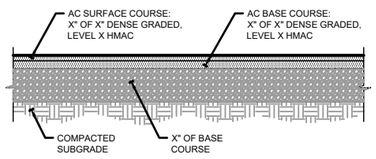


X TYPICAL PARKING LAYOUT
SCALE: NTS

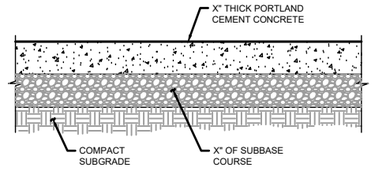


NOTES:
1. DIMENSIONS ARE NOMINAL AND MAY VARY TO CONFORM TO MANUFACTURER'S PRODUCTS APPROVED BY ENGINEER.

X PRECAST CONCRETE WHEEL STOP
SCALE: NTS

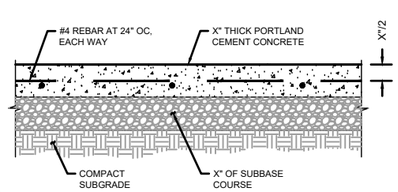


X ASPHALT PAVEMENT SECTION
SCALE: NTS



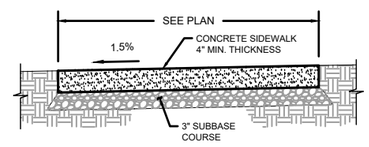
NOTES:
1. - CONSTRUCT CONTRACTION JOINTS AT 15' MAX. SPACING AND AT RAMPS.
   - CONSTRUCT EXPANSION JOINTS AT 200' MAX. SPACING AT POINTS OF TANGENCY AND AT ENDS OF EACH DRIVEWAY.
2. PROVIDE MEDIUM TO COARSE BROOM FINISH.

X CONCRETE PAVEMENT SECTION
SCALE: NTS



NOTES:
1. JOINTS:
   - 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.
2. PROVIDE MEDIUM TO COARSE BROOM FINISH.

X REINFORCED CONCRETE PAVEMENT SECTION
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.

X CONCRETE SIDEWALK
SCALE: NTS

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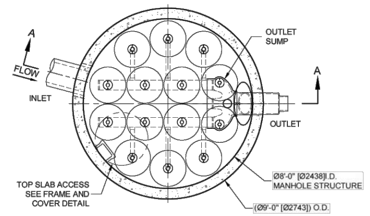
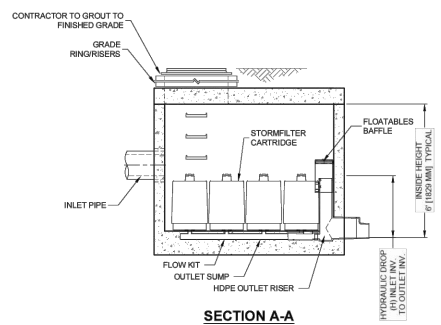
C5.0
DETAILS

KAADY CAR WASH - WEST LINN
18850 WILLAMETTE DRIVE WEST LINN, OR

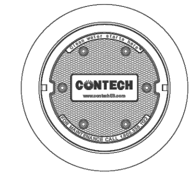


PLAN VIEW
STANDARD OUTLET RISER
FLOWKIT: 43A



SECTION A-A

The Stormwater Management StormFilter®



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

STORMFILTER DESIGN NOTES

STORMFILTER TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. THE STANDARD MANHOLE STYLE IS SHOWN WITH THE MAXIMUM NUMBER OF CARTRIDGES (14). VOLUME SYSTEM IS ALSO AVAILABLE WITH MAXIMUM 14 CARTRIDGES. Ø8'-0" [2438 mm] MANHOLE STORMFILTER PEAK HYDRAULIC CAPACITY IS 1.8 CFS [51 L/s] . IF THE SITE CONDITIONS EXCEED 1.8 CFS [51 L/s] AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CARTRIDGE SELECTION

CARTRIDGE HEIGHT	27" [686 mm]			18" [458 mm]			LOW DROP		
RECOMMENDED HYDRAULIC DROP (H)	3.05' [930 mm]			2.3' [700 mm]			1.8' [550 mm]		
SPECIFIC FLOW RATE (gpm/sf) [L/s/m²]	2 [1.30]	1.67* [1.08]	1 [0.65]	2 [1.30]	1.67* [1.08]	1 [0.65]	2 [1.30]	1.67* [1.08]	1 [0.65]
CARTRIDGE FLOW RATE (gpm) [L/s]	22.5 [1.42]	18.79 [1.19]	11.25 [0.71]	15 [0.95]	12.53 [0.79]	7.5 [0.44]	10 [0.63]	8.35 [0.54]	5 [0.32]

* 1.67 gpm/sf [1.08 L/s/m²] SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB® (PSORB) MEDIA ONLY

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	*
WATER QUALITY FLOW RATE (cfs) [L/s]	*
PEAK FLOW RATE (cfs) [L/s]	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
CARTRIDGE HEIGHT (SEE TABLE ABOVE)	*
NUMBER OF CARTRIDGES REQUIRED	*
CARTRIDGE FLOW RATE	*
MEDIA TYPE (PERLITE, ZPG, PSORB)	*

PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE #1	*	*	*
INLET PIPE #2	*	*	*
OUTLET PIPE	*	*	*

RIM ELEVATION	*

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

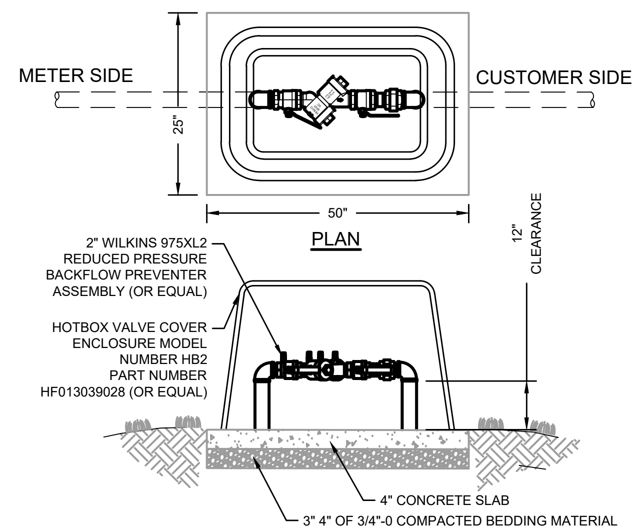
* PER ENGINEER OF RECORD

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR SITE SPECIFIC DRAWINGS WITH DETAILED VAULT DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
4. STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS-20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' [1524 mm] AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
6. FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES [178 mm]. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 38 SECONDS.
7. SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) [L/s] DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft)[m²].
8. STORMFILTER STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET PIPE(S).
E. CONTRACTOR TO PROVIDE AND INSTALL CONNECTOR TO THE OUTLET RISER STUB. STORMFILTER EQUIPPED WITH A DUAL DIAMETER HDPE OUTLET STUB AND SAND COLLAR. IF OUTLET PIPE IS LARGER THAN 8 INCHES [200 mm], CONTRACTOR TO REMOVE THE 8 INCH [200 mm] OUTLET STUB AT MOLDED-IN CUT LINE. COUPLING BY FERNCO OR EQUAL AND PROVIDED BY CONTRACTOR.
F. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

SFMH96
STORMFILTER
STANDARD DETAIL

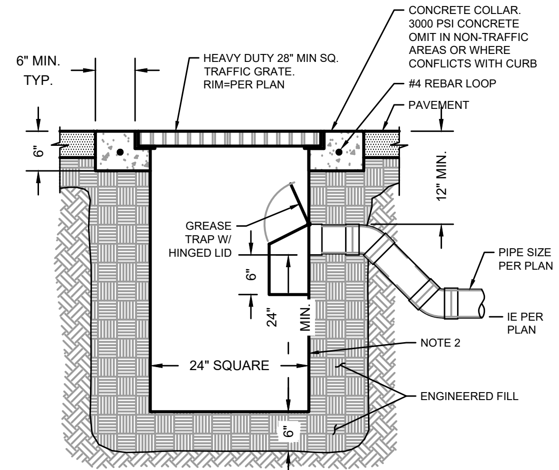


ELEVATION

NOTE:

1. HOTBOX ENCLOSURE SHALL BE INSULATED AND HEATED. COORDINATE WITH ELECTRICAL PLANS FOR CONNECTION.
2. RPBA SHALL BE ACCESSIBLE BY VERTICALLY LIFTING OFF ENCLOSURE. CONTRACTOR TO VERIFY ACCESSIBILITY PRIOR TO CONSTRUCTION.

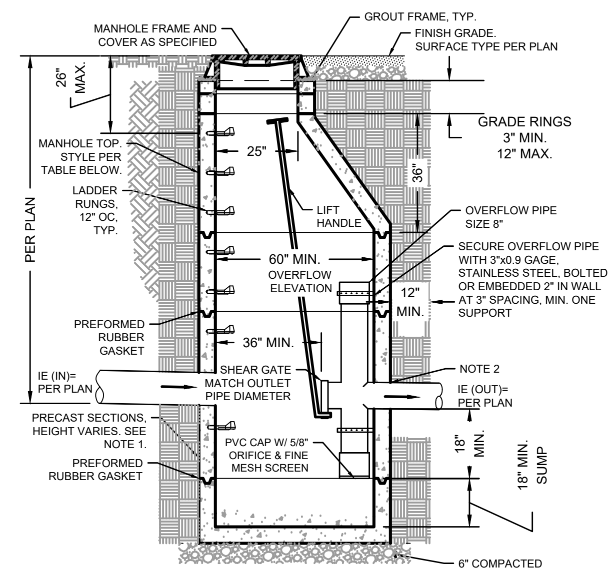
10 REDUCED PRESSURE BACKFLOW ASSEMBLY
SCALE: NTS



SECTION

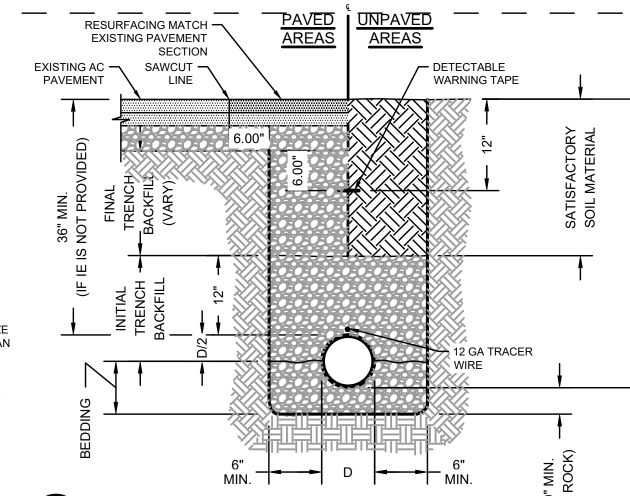
NOTES:
1. CONTRACTOR TO WIDEN EXCAVATION AS REQUIRED TO OBTAIN COMPACTION WITH CONTRACTORS COMPACTION EQUIPMENT.
2. 1/4" STEEL PLATE, BITUMINOUS COATED. AS MANUFACTURED BY GIBSON STEEL BASINS OR APPROVED EQUAL.

X TRAPPED CATCH BASIN
SCALE: NTS

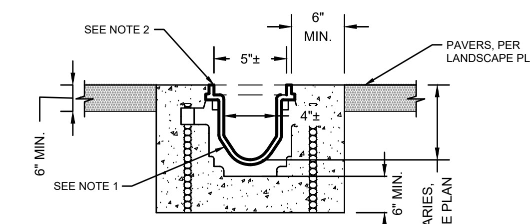


NOTES:
1. ALL PRECAST SECTIONS SHALL CONFORM TO REQUIREMENTS OF ASTM C-478.
2. ALL CONNECTING PIPES SHALL HAVE FLEXIBLE, GASKETED AND UNRESTRAINED JOINT WITHIN 18" OF MANHOLE VAULT. PIPE SIZES NOTED ON PLANS. PIPE CONNECTION TO MANHOLES SHALL HAVE KOR-N-SEAL BOOT OR APPROVED EQUAL.
3. ORIFICE AND OVERFLOW ELEVATIONS ARE RELATIVE TO IE (OUT)

6 FLOW CONTROL MANHOLE
SCALE: NTS



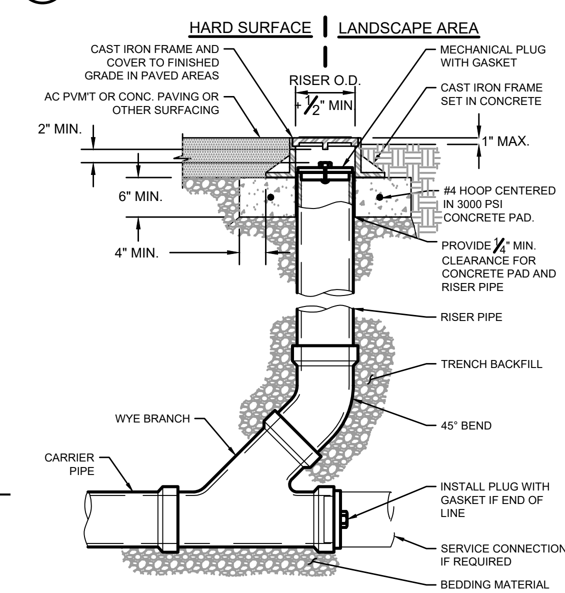
X TYPICAL PIPE BEDDING AND BACKFILL
SCALE: NTS



SECTION

NOTES:
1. TRENCH DRAIN SHALL BE PRE-SLOPED 4" WIDE ZURN OR ACO TRENCH DRAIN OR APPROVED EQUAL.
2. TRENCH DRAINS GRATE SHALL BE LOCKABLE HEAVY DUTY TRENCH GRATE - CLASS C.
3. TRENCH SYSTEM SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.

X TRENCH DRAIN - 4 INCH WIDE
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.

X STANDARD CLEANOUT (COTG)
SCALE: NTS

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C5.1 DETAILS

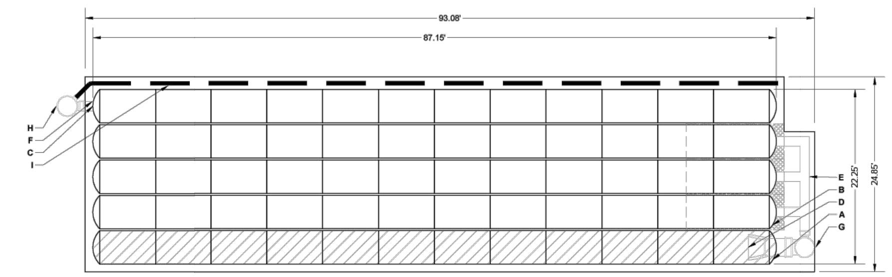
KAADY CAR WASH - WEST LINN
18850 WILLAMETTE DRIVE WEST LINN, OR

File: P:\2025\25-c007 (kaady car wash - west linn)\300 civil design documents - froelich\302 CADPLOT\25-C007_C5.0-DETL.dwg TAB:C5.2 (11x17)

PROPOSED LAYOUT		PROPOSED ELEVATIONS	
60	STORMTECH SC-800 CHAMBERS	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED):	111.25
10	STORMTECH SC-800 END CAPS	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC):	105.0[illegible]
6	STONE ABOVE (in)	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC):	104.[illegible]0
6	STONE BELOW (in)	MINIMUM ALLOWABLE GRADE (TOP OF RIGID CONCRETE PAVEMENT):	104.50
40	STONE VOID	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT):	10[illegible].50
5272	INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED) (COVER STONE INCLUDED) (BASE STONE INCLUDED)	TOP OF STONE:	[illegible]3.75
		TOP OF SC-800 CHAMBER:	[illegible]3.25
		12" x 12" TOP MANIFOLD INVERT:	[illegible]1.70
		24" ISOLATOR ROW PLUS INVERT:	10[illegible].69
2286	SYSTEM AREA (SF)	12" BOTTOM CONNECTION INVERT:	10[illegible].63
235.9	SYSTEM PERIMETER (ft)	BOTTOM OF SC-800 CHAMBER:	100.[illegible]0
423	THERMOPLASTIC LINER (SY) (20% OVERAGE)	UNDERDRAIN INVERT:	100.0[illegible]
		BOTTOM OF STONE:	100.00

*INVERT ABOVE BASE OF CHAMBER

PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT*	MAX FLOW
PREFABRICATED EZ END CAP	A	24" BOTTOM PREFABRICATED EZ END CAP, PART#: SC800ECEZ / TYP OF ALL 24" BOTTOM CONNECTIONS AND ISOLATOR PLUS ROWS	2.30"	
PRE-CORED END CAP	B	12" TOP PRE-CORED END CAP, PART#: SC800EPE12TPC / TYP OF ALL 12" TOP CONNECTIONS	14.40"	
PRE-CORED END CAP	C	12" BOTTOM PRE-CORED END CAP, PART#: SC800EPE12BPC / TYP OF ALL 12" BOTTOM CONNECTIONS	1.60"	
FLAMP	D	INSTALL FLAMP ON 24" ACCESS PIPE / PART#: SC80024RAMP		
MANIFOLD	E	12" x 12" TOP MANIFOLD, ADS N-12	14.40"	
PIPE CONNECTION	F	12" BOTTOM CONNECTION	1.60"	
NYLOPLAST (INLET W/ ISO PLUS ROW)	G	30" DIAMETER (24.00" SUMP MIN)		5.9 CFS IN
NYLOPLAST (OUTLET)	H	30" DIAMETER (DESIGN BY ENGINEER)		2.0 CFS OUT
UNDERDRAIN	I	6" ADS N-12 DUAL WALL PERFORATED HDPE UNDERDRAIN		



ISOLATOR ROW PLUS (SEE DETAIL)

PLACE MINIMUM 12.50' OF ADSPLUS625 WOVEN GEOTEXTILE OVER BEDDING STONE AND UNDERNEATH CHAMBER FEET FOR SCOUR PROTECTION AT ALL CHAMBER INLET ROWS

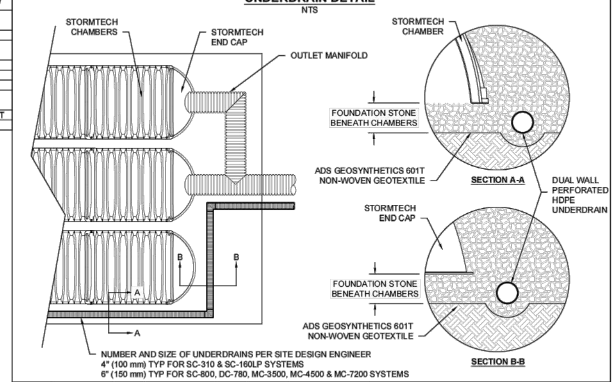
THERMOPLASTIC LINER (SEE TECH NOTE #6.50 PROVIDED BY OTHERS / DESIGN BY OTHERS)

NOTES

- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- **NOT FOR CONSTRUCTION**: THIS LAYOUT IS FOR DIMENSIONAL PURPOSES ONLY TO PROVE CONCEPT & THE REQUIRED STORAGE VOLUME CAN BE ACHIEVED ON SITE.

UNDERDRAIN DETAIL

NTS

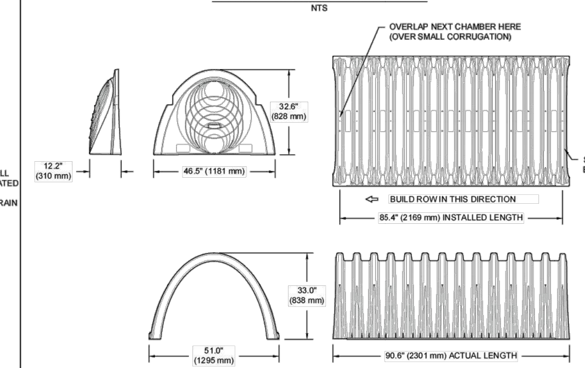


4 UNDERDRAIN DETAIL

SPACE INTENTIONALLY LEFT BLANK

SC-800 TECHNICAL SPECIFICATION

NTS



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	51.0" X 33.0" X 85.4"	(1295 mm X 838 mm X 2169 mm)
CHAMBER STORAGE	50.6 CUBIC FEET	(1.43 m³)
MINIMUM INSTALLED STORAGE*	78.4 CUBIC FEET	(2.22 m³)
WEIGHT	81.8 lbs.	(37.1 kg)

NOMINAL END CAP SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	46.5" X 32.6" X 10.5"	(1181 mm X 828 mm X 267 mm)
END CAP STORAGE	3.4 CUBIC FEET	(0.09 m³)
MINIMUM INSTALLED STORAGE**	14.7 CUBIC FEET	(0.42 m³)
WEIGHT	15.7 lbs.	(7.1 kg)

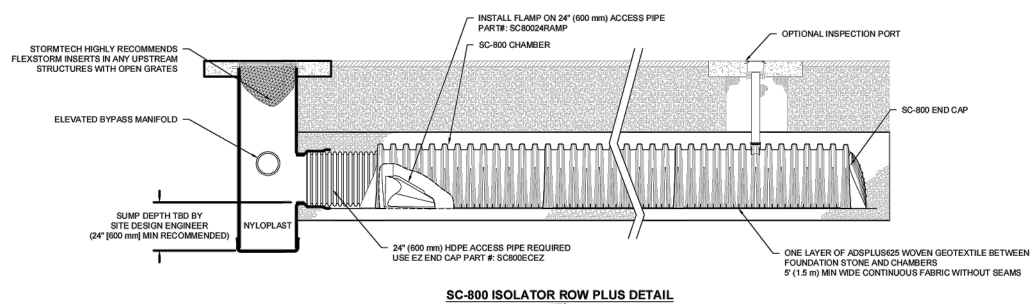
* ASSUMES 6" (150 mm) STONE ABOVE, BELOW, AND BETWEEN CHAMBERS, 3" (75 mm) BETWEEN CHAMBERS
**ASSUMES 6" (150 mm) STONE ABOVE AND BELOW END CAPS, 3" (150 mm) BETWEEN ROWS, 12" (300 mm) BEYOND END CAPS

PRE-CORED HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "BPC"
PRE-CORED HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "TPC"

PART #	STUB	B	C
SC800EPE06TPC	6" (150 mm)	21.4" (544 mm)	---
SC800EPE06BPC		---	0.9" (23 mm)
SC800EPE08TPC	8" (200 mm)	19.2" (488 mm)	---
SC800EPE08BPC		---	1.0" (25 mm)
SC800EPE10TPC	10" (250 mm)	17.0" (432 mm)	---
SC800EPE10BPC		---	1.2" (30 mm)
SC800EPE12TPC	12" (300 mm)	14.4" (366 mm)	---
SC800EPE12BPC		---	1.6" (41 mm)
SC800EPE15TPC	15" (375 mm)	11.3" (287 mm)	---
SC800EPE15BPC		---	1.7" (43 mm)
SC800EPE18TPC	18" (450 mm)	8.0" (203 mm)	---
SC800EPE18BPC		---	2.0" (51 mm)
SC800EPE24BPC	24" (600 mm)	---	2.3" (58 mm)
SC800EPE	NONE	SOLID END CAP	

NOTE: ALL DIMENSIONS ARE NOMINAL

2 SC-800 TECHNICAL SPECIFICATION



SC-800 ISOLATOR ROW PLUS DETAIL

NTS

3 SC-800 ISOLATOR ROW PLUS DETAIL

SPACE INTENTIONALLY LEFT BLANK

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

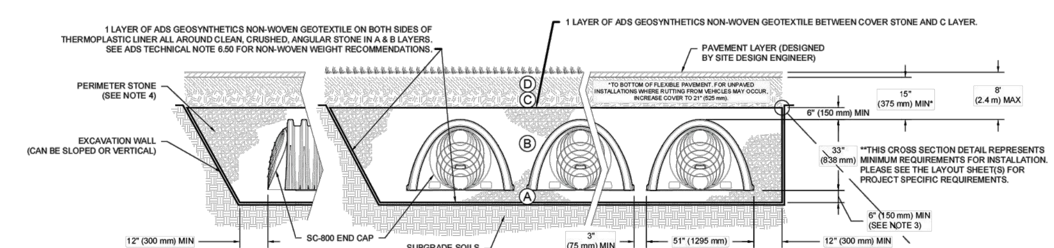
NOTES

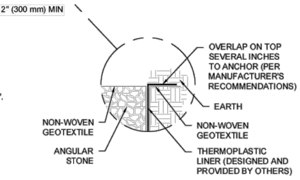
1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

ACCEPTABLE FILL MATERIALS: STORMTECH SC-800 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 15" (375 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[5]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[5]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.
5. WHERE RECYCLED CONCRETE AGGREGATE IS USED IN LAYERS 'A' OR 'B' THE MATERIAL SHOULD ALSO MEET THE ACCEPTABILITY CRITERIA OUTLINED IN TECHNICAL NOTE 6.20 "RECYCLED CONCRETE STRUCTURAL BACKFILL".





NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-800 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS. REFERENCE STORMTECH DESIGN MANUAL FOR BEARING CAPACITY GUIDANCE.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 750 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

1 SC-800 CROSS SECTION DETAIL

DATE: 07/25/2025
PROJECT #:
NOT TO SCALE
DRAWN: CC
CHECKED: N/A
REV:

25-C007 KAADY
WEST LINN, OR, USA

StormTech® Chamber System

4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

ADS

SHEET
1 OF 1

FIRE CODE / LAND USE / BUILDING REVIEW APPLICATION

Tualatin Valley Fire & Rescue

North Operating Center
11945 SW 70th Avenue
Tigard, OR 97223
Phone: 503-649-8577

South Operating Center
8445 SW Elligsen Rd
Wilsonville, OR 97070
Phone: 503-649-8577

REV 6-30-20

Project Information

Applicant Name: Eric Li, TVA Architects

Address:1750 SW Yamhill Street, Suite 150, Portland, Oregon 97205

Phone:971-678-7578

Email: ericl@tvaarchitects.com

Site Address: 18850 Willamette Drive

City: West Linn

Map & Tax Lot #: 21E14DD-6900

Business Name: Kaady Car Wash

Land Use/Building Jurisdiction: General Commercial

Land Use/ Building Permit #PA-25-06 (This is a Pre-App#. Pending CU Submission for permit number.)

Choose from: Beaverton, Tigard, Newberg, Tualatin, North Plains, West Linn, Wilsonville, Sherwood, Rivergrove, Durham, King City, Washington County, Clackamas County, Multnomah County, Yamhill County

Project Description

Demolition of an existing McDonald's restaurant. Providing a new drive-through mechanized car wash and associated vacuum parking stalls.

The building is Type VB construction, one story, 3,1900 sf, 17'-8" high. Drive access is available on all four sides of the building. The building is not sprinklered, but its interior is constantly wet due to the nature of the building.

Permit/Review Type (check one):

☒ Land Use / Building Review - Service Provider Permit

☐ Emergency Radio Responder Coverage Install/Test

☐ LPG Tank (Greater than 2,000 gallons)

☐ Flammable or Combustible Liquid Tank Installation (Greater than 1,000 gallons)

* Exception: Underground Storage Tanks (UST) are deferred to DEQ for regulation.

☐ Explosives Blasting (Blasting plan is required)

☐ Exterior Toxic, Pyrophoric or Corrosive Gas Installation (in excess of 810 cu.ft.)

☐ Tents or Temporary Membrane Structures (in excess of 10,000 square feet)

☐ Temporary Haunted House or similar

☐ OLCC Cannabis Extraction License Review

☐ Ceremonial Fire or Bonfire (For gathering, ceremony or other assembly)

For Fire Marshal's Office Use Only

TVFR Permit # 2025-0113

Permit Type: SPP - West Linn

Submittal Date: 7-5-25

Assigned To: DFM Arn

Due Date: NA

Fees Due: Ø

Fees Paid: Ø

Approval/Inspection Conditions

(For Fire Marshal's Office Use Only)

This section is for application approval only

0430 7-8-25

Fire Marshal or Designee Date

Conditions: See approved fire service plans.

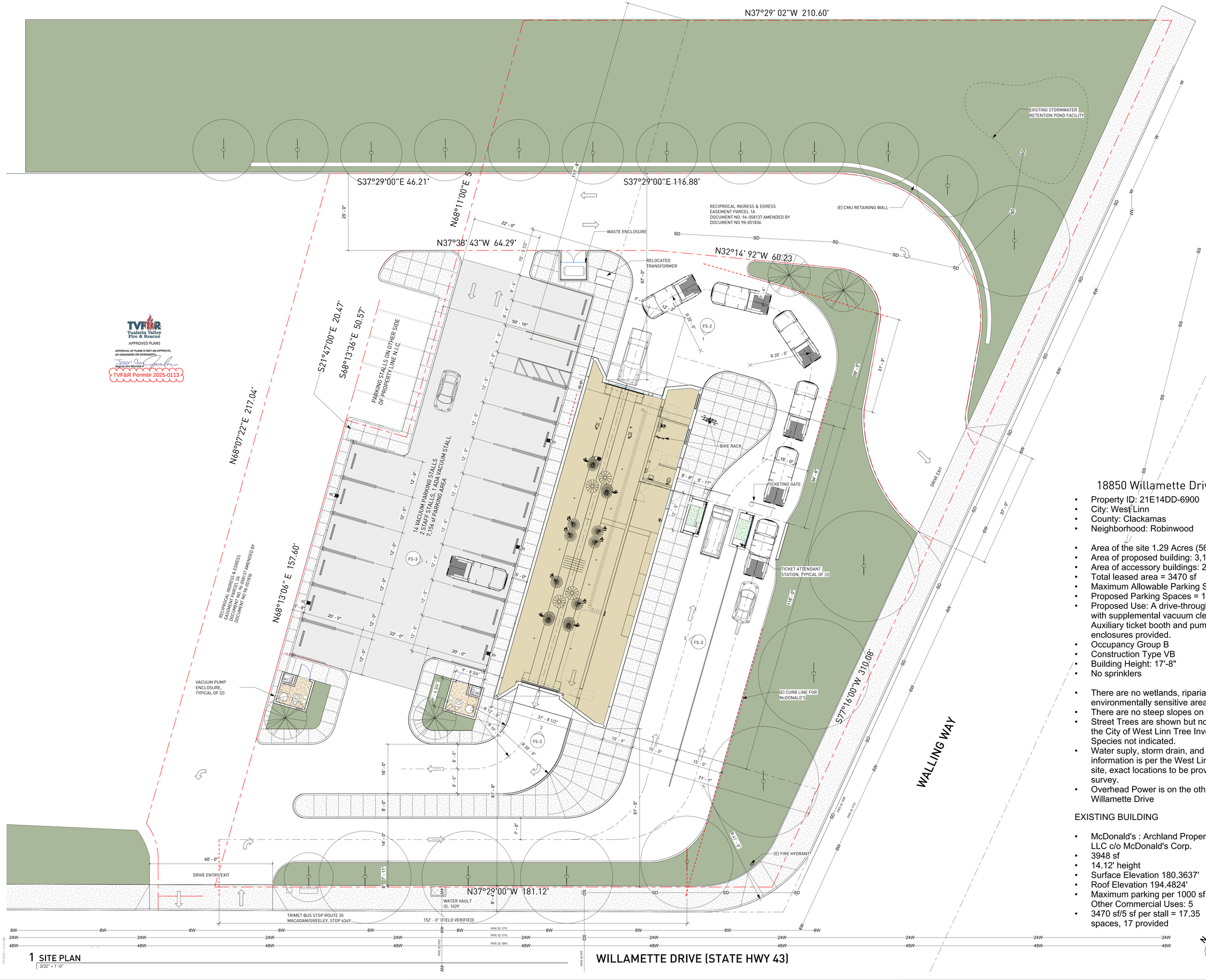
See Attached Conditions: ☐ Yes ☒ No

Site Inspection Required: ☐ Yes ☒ No

This section used when site inspection is required

Inspection Comments:

Final TVFR Approval Signature & Emp ID Date



1 SITE PLAN
3/32" = 1'-0"

TVF&R
Tualatin Valley Fire & Rescue
APPROVED PLANS
APPROVAL OF PLANS IS NOT AN APPROVAL OF OMISSIONS OR OVERSIGHTS.
Deputy Fire Marshal II
TVF&R Permit# 2025-0113

tva architects inc.
1750 sw yamhill st. suite 150
portland, oregon 97205
phone: 503 220 0668
www.tvaarchitects.com

NOT FOR CONSTRUCTION

KAADY CAR WASH

18850 WILLAMETTE DRIVE, WEST LINN, OREGON 97068

18850 Willamette Drive

- Property ID: 21E14DD-6900
- City: West Linn
- County: Clackamas
- Neighborhood: Robinwood

- Area of the site 1.29 Acres (56,378 sf)
- Area of proposed building: 3,190 sf
- Area of accessory buildings: 280 sf
- Total leased area = 3470 sf
- Maximum Allowable Parking Spaces = 17
- Proposed Parking Spaces = 17
- Proposed Use: A drive-through car wash with supplemental vacuum cleaning stations. Auxiliary ticket booth and pumphouse enclosures provided.
- Occupancy Group B
- Construction Type VB
- Building Height: 17'-8"
- No sprinklers

- There are no wetlands, riparian, or environmentally sensitive areas on site.
- There are no steep slopes on site.
- Street Trees are shown but not identified on the City of West Linn Tree Inventory Map. Species not indicated.
- Water suply, storm drain, and sanitary sewer information is per the West Linn City Maps site, exact locations to be provided by survey.
- Overhead Power is on the other side of Willamette Drive

EXISTING BUILDING

- McDonald's : Archland Property LLC c/o McDonald's Corp.
- 3948 sf
- 14.12' height
- Surface Elevation 180.3637'
- Roof Elevation 194.4824'
- Maximum parking per 1000 sf for Other Commercial Uses: 5
- 3470 sf/5 sf per stall = 17.35 spaces, 17 provided

△ Revisions

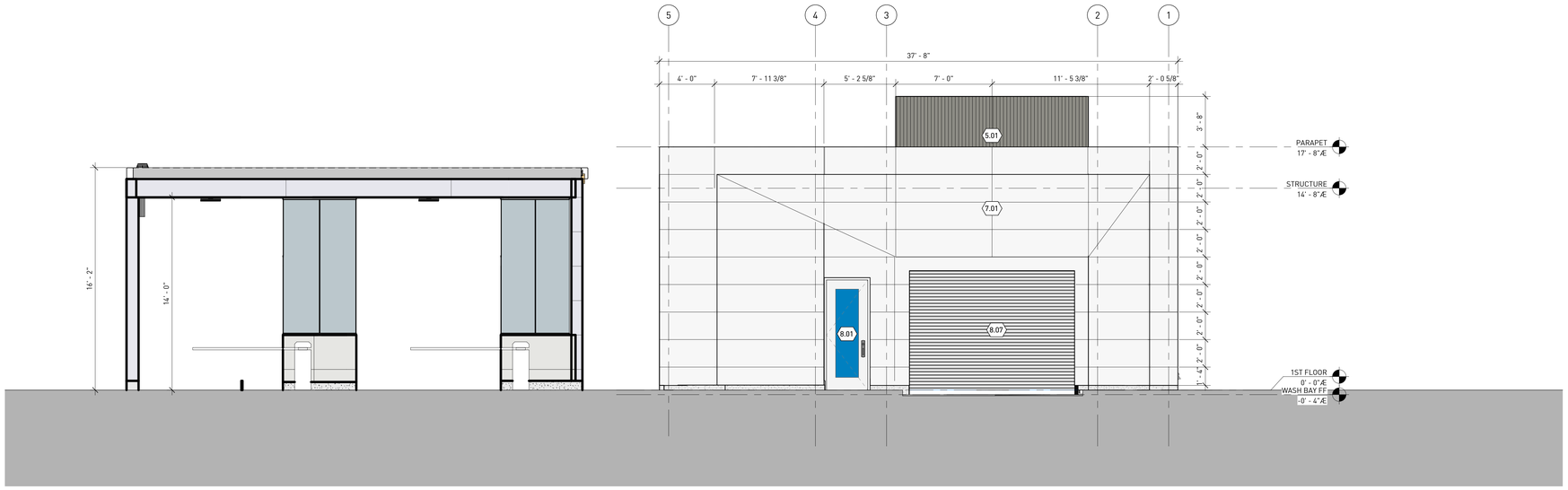
FIRE SERVICE PERMIT

OVERALL SITE PLAN

Project # 22005

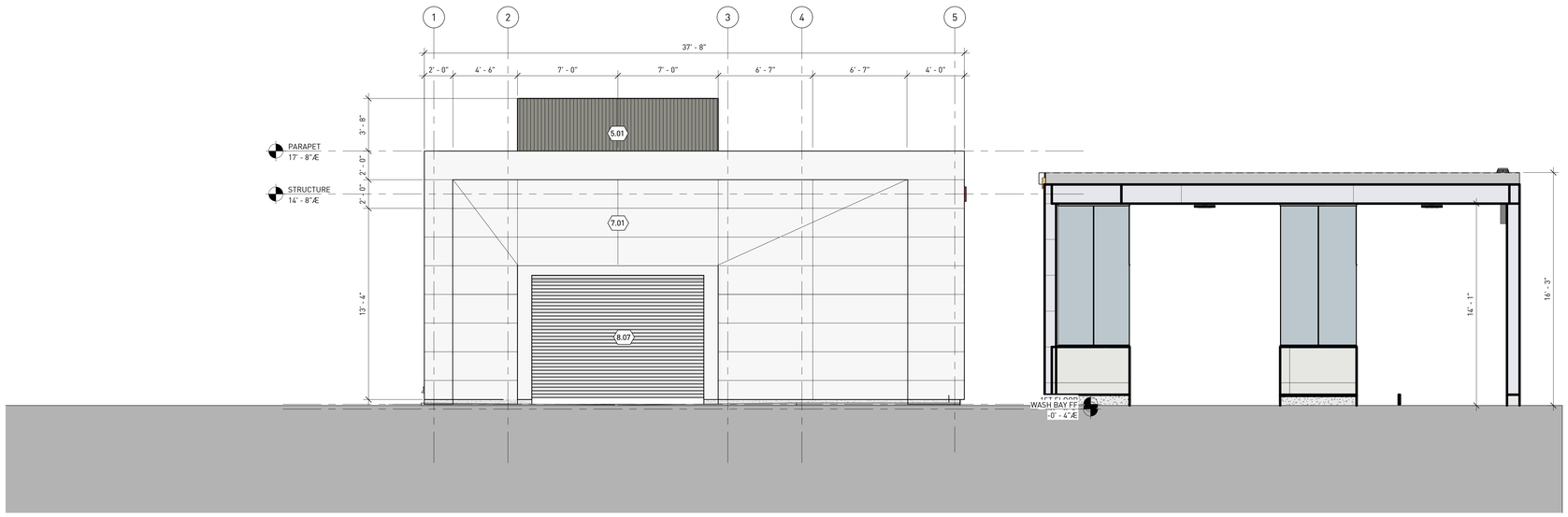
FS-1

Date: 2.7.2024



1 ENTRANCE ELEVATION

1/4" = 1'-0"



2 EXIT ELEVATION

1/4" = 1'-0"

GENERAL NOTES

1. PAINT ALL NON-NOTED MISCELLANEOUS ITEMS TO MATCH ADJACENT REFERENCE FINISH COLOR UNO.
2. LOUVER COLOR TO BE COORDINATED / SELECTED WITH SUBMITTALS.
3. SEE FLOOR PLAN FOR DOOR AND WINDOW TAGS,TYP.
4. WINDOW TYPES NOT SHOWN ON FLOOR PLANS ARE SHOWN ON THESE ELEVATIONS.
5. SEE WALL SECTIONS FOR ADDITIONAL ELEVATED AREAS.

KEYNOTES

SHOWN THUS ⬡

NOTE: ONLY KEYNOTES APPROPRIATE TO THIS SHEET ARE SHOWN IN THIS KEYNOTE LEGEND. GC TO VERIFY ANY DISCREPANCY IN KEYNOTING.

5.01	HSS 4X4 ROOF SCREEN FRAME, SEE STRUCTURAL. RIBBED METAL PANEL CLADDING, METAL SALES T10-A.
7.01	SMOOTH METAL PANEL SMP-1, COMPOSITE METAL PANEL, ALPOLIC, ALUCOBOND, REYNOBOND OR APPROVED. .020 INCH THICK ALUMINUM SHEET WITH ORGANIC COATING FINISH WITH A LOW-DENSITY POLYEHTYLENE CORE. COLOR: WHITE. ROUT AND RETURN FABRICATION FOR 1" NOMINAL PANEL DEPTH. PROVIDE BACKER ROD AND SILICONE SEALANT FOR 1/2" VERTICAL AND HORIZONTAL JOINTS.
8.01	GLAZED ALUMINUM STOREFRONT ENTRY 3'-0" X 8'-0": KAWNEER 350T STANDARD MEDIUM THERMAL SWING DOOR ENTRANCE. 3 1/2" ALUMINUM STILES AND TOP RAIL, 6 1/2" BOTTOM RAIL. GUARDIAN SNX 62/27 LOW-E TEMPERED GLASS LITES, U .28 MAX, SHGC .26 MAX. DOOR HARDWARE: BUTT HINGES (4EA): IVES 5BB1HW 4.5 X 4.5 NRP 630 BRUSHED STAINLESS FINISH, EXIT DEVICE: FALCON F-25-R-L-NL-LAT RIM DEVICE, CLOSER: LCN 4020 CUSH SURFACE MOUNTED CLOSER. THRESHOLD: PEMKO 171 SERIES COMMERCIAL FLAT THRESHOLD 5" WIDE. GASKET: ZERO 488SBK PSA. DOOR SWEEP ZERO 8198AA RAIN DRIP WITH NYLON BRUSH.
8.07	OVERHEAD COILING DOOR: COOKSON MODEL ESD10 MOTORIZED ROLLING SERVICE DOOR. 20 GAUGE PAINTED GALVANIZED STEEL, PAINT WHITE. 12'-0" WIDE X 9'-0" HIGH.

tva architects inc.
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phone: 503 220 0668
www.tvaarchitects.com

NOT FOR CONSTRUCTION

KAADY CAR WASH

18850 WILLAMETTE DRIVE, WEST LINN, OREGON 97068

△ Revisions

FIRE SERVICE PERMIT

EXTERIOR ELEVATIONS

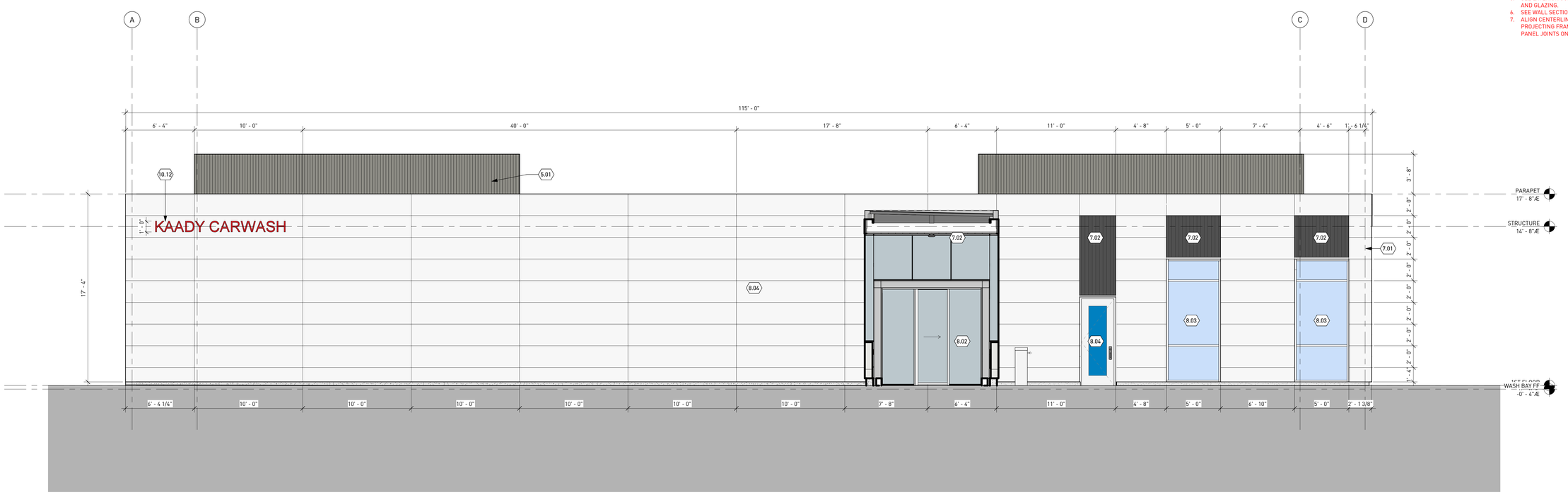
Project # 22005

FS-2

Date: 2.7.2024

GENERAL NOTES

1. PAINT ALL NON-NOTED MISCELLANEOUS ITEMS TO MATCH ADJACENT REFERENCE FINISH COLOR UNO.
2. LOUVER COLOR TO BE COORDINATED / SELECTED WITH SUBMITTALS.
3. SEE FLOOR PLAN FOR DOOR AND WINDOW TAGS,TYP.
4. WINDOW TYPES NOT SHOWN ON FLOOR PLANS ARE SHOWN ON THESE ELEVATIONS.
5. SEE EXTERIOR COMPOSITE SHEETS FOR EXTERIOR FINISHES AND GLAZING.
6. SEE WALL SECTIONS FOR ADDITIONAL ELEVATED AREAS.
7. ALIGN CENTERLINE OF PANEL JOINTS ON SOFFITS AND PROJECTING FRAME ELEMENTS WITH CENTERLINE OF PANEL JOINTS ON WALLS, TYP.



1 DRIVER'S SIDE ELEVATION (SOUTH)

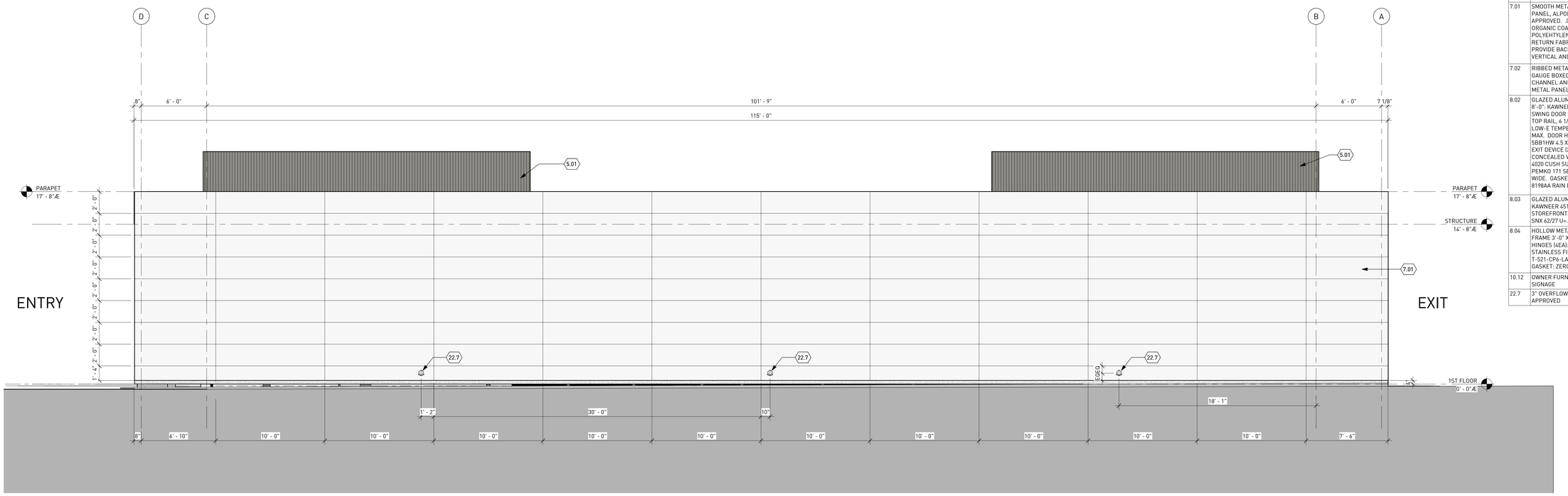
1/4" = 1'-0"

KEYNOTES

SHOWN THUS ⬡

NOTE: ONLY KEYNOTES APPROPRIATE TO THIS SHEET ARE SHOWN IN THIS KEYNOTE LEGEND. GC TO VERIFY ANY DISCREPANCY IN KEYNOTING.

5.01	HSS 4X4 ROOF SCREEN FRAME, SEE STRUCTURAL. RIBBED METAL PANEL CLADDING, METAL SALES T10-A.
7.01	SMOOTH METAL PANEL SMP-1, COMPOSITE METAL PANEL, ALPOLIC, ALUCOBOND, REYNOBOND OR APPROVED. .020 INCH THICK ALUMINUM SHEET WITH ORGANIC COATING FINISH WITH A LOW-DENSITY POLYEHTYLENE CORE. COLOR: WHITE. ROUT AND RETURN FABRICATION FOR 1" NOMINAL PANEL DEPTH. PROVIDE BACKER ROD AND SILICONE SEALANT FOR 1/2" VERTICAL AND HORIZONTAL JOINTS.
7.02	RIBBED METAL PANEL RMP-1: METAL SALES T10-A, 22 GAUGE BOXED RIB METAL PANEL. MOUNT TO FURRING CHANNEL AND FLUSH OUT WITH ADJACENT SMOOTH METAL PANEL SMP-1. COLOR: GREY
8.02	GLAZED ALUMINUM PAIRED STOREFRONT ENTRY 6'-0" X 8'-0": KAWNEER 350T STANDARD MEDIUM THERMAL SWING DOOR ENTRANCE. 3 1/2" ALUMINUM STILES AND TOP RAIL, 6 1/2" BOTTOM RAIL. GUARDIAN SNX 62/27 LOW-E TEMPERED GLASS LITES, U .28 MAX, SHGC .26 MAX. DOOR HARDWARE: BUTT HINGES (8EA): IVES 5BB1HW 4.5 X 4.5 NRP 630 BRUSHED STAINLESS FINISH, EXIT DEVICE (2EA): FALCON F-25-C-L-NL-LAT CONCEALED VERTICAL ROD DEVICE. CLOSER (2EA): LCN 4020 CUSH SURFACE MOUNTED CLOSER. THRESHOLD: PEMKO 171 SERIES COMMERCIAL FLAT THRESHOLD 5" WIDE. GASKET: ZERO 4885BK PSA. DOOR SWEEP ZERO 8198AA RAIN DRIP WITH NYLON BRUSH.
8.03	GLAZED ALUMINUM STOREFRONT: BASIS OF DESIGN: KAWNEER 451T THERMALLY BROKEN 4 1/2" ALUMINUM STOREFRONT. 1" INSULATED GLAZING UNITS, GUARDIAN SNX 62/27 U=.28, SHGC=.26. COLOR: WHITE
8.04	HOLLOW METAL OFFICE DOOR WITH HOLLOW METAL FRAME 3'-0" X 8'-0", PAINT WHITE. HARDWARE: BUTT HINGES (4EA): IVES 5BB1HW 4.5 X 4.5 NRP 630 BRUSHED STAINLESS FINISH, OFFICE LOCKSET: FALCON T-521-CP6-LAT. CLOSER: LCN 4110 SURFACE MOUNT. GASKET: ZERO 4885BK PSA.
10.12	OWNER FURNISHED, OWNER INSTALLED BUILDING SIGNAGE
22.7	3" OVERFLOW NOZZLE WITH FLAPPER. ZURN ZF 199 OR APPROVED



2 PASSENGER'S SIDE ELEVATION (NORTH)

1/4" = 1'-0"

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NOT FOR CONSTRUCTION

KAADY CAR WASH

18850 WILLAMETTE DRIVE, WEST LINN, OREGON 97068

△ Revisions

FIRE SERVICE PERMIT

EXTERIOR ELEVATIONS

Project # 22005

FS-3

Date: 2.7.2024

FROELICH
ENGINEERS

(Land Use) Stormwater Management Report

Kaady Car Wash – West Linn

18850 Willamette Dr
West Linn, OR 97068

Prepared by: Evan Eykelbosch, PE, and Ben Ullmann, PE
Froelich Engineers
17700 SW Upper Boones Ferry Rd, Suite 115
Portland, OR 97224
Froelich Project Number: 25-C007
Date: 8/1/2025

Contents

I. Project Overview and Description

This stormwater report has been prepared in accordance with the City of West Linn's Stormwater Management Manual (WLSWMM) to support the Building Permit application for the proposed project improvements.

Kaady Car Wash – West Linn is a site redevelopment project to convert an existing fast food site. The site is located on tax lot 6900 in the Clackamas County tax map 21E14DD. The existing development will be removed and a new automatic drive thru car wash, with a queuing line and vacuum equipped parking stalls will be constructed. There are no expected frontage improvements to be required with this on-site work.

Existing Conditions

Onsite
This site is located at 18850 Willamette Dr. West Linn, Oregon (See Appendix A: Vicinity Map) and is zoned for General Commercial use (GC). The existing site is approximately 1.30 acres and currently consists of a non-operational McDonalds drive-thru and parking lot. The topography of the majority of the site is a north to south sloping topography with a perpendicular running retaining wall along the north side of the drive aisle. The slope increases significantly beyond the retaining wall. The site is accessible by driveway on Willamette Drive and a driveway along Walling Way. The existing soil is classified as Cascade silt loam with 8 to 15 percent slopes based on a Soil Resource Report for the NRCS with a **Group C** type soil (See Appendix D: Soil Resource Report). Stormwater from the existing site is collected in a series of catch basins and is conveyed into an on-site water quality vault and detention pond. Runoff is managed through a flow control structure and then discharged into the stormwater main in Walling Way. The stormwater is then conveyed into Fern Creek which then outfalls to the Willamette River. The site is within the Willamette River watershed.

'Table 1A: Predeveloped Catchment Basins' provides the predeveloped basin characteristics for the various catchment areas under the predeveloped conditions.

Proposed Conditions

Onsite
The proposed development will construct water quality, water quantity, and storm water detention facilities to meet the requirements in WLSWMM. The onsite development will collect and manage stormwater through trench drains, roof drains, and a catch basin. The captured runoff is then conveyed through a water quality manhole and then piped into a buried detention structure. The proposed stormwater system will tie into the existing stormwater manhole and discharge to the same location.

'Table 1B: Proposed Catchment Basins' provides the proposed basin characteristics for the various catchment areas under the proposed conditions.

A proposed condition Basin Map is provided in Appendix B: Basin Maps and Areas.

II. Methodology

The WLSWMM requires that all new construction resulting in at least 10,000 square feet of impervious area created or replaced to comply with stormwater requirements. Infiltration on site is not feasible due to existing soil conditions and steep slope conditions.

The water quality requirements consist of providing stormwater treatment for the water quality event of 1 inch per 24-hour period for a time of concentration of 10 minutes for the impervious area. This is roughly 80% of the average annual rainfall for the City of West Linn.

The flow control requirements consist of limiting the 2-year, 10-year, and 25-year post development peak flows to their respective pre-development peak. Predeveloped flows are based on a grassland/forested topography with a time of concentration of 5 minutes.

A summary of the stormwater treatment requirements facilities is provided in ‘Table 2: Catchment and Facility Table’ and a summary of the flow rate results is provided in ‘Table 3: Pre- vs Post-Construction Stormwater Flow Rate Table.’

The conveyance calculations were designed for the 25-year storm event (3.9 in/24-hr). See Appendix H: Conveyance Calculations for conveyance sizing calculations.

III. Analysis

The analysis for the onsite stormwater system design is based on Santa Barbara Urban Hydrograph (SBUH) Method using a NRCS Type 1A rainfall distribution for a 24-hour storm. The system was designed using HydroCAD software.

The proprietary water quality manhole design is based on water quality flow of 1 inch per 24-hour storm event, using HydroCAD software (See Appendix F: Water Quality Calculations).

The detention facility design is based on the 2-year, 10-year, and 25-year storm events, using HydroCAD. The WLSSMM requires that detention systems be designed with concrete detention pipes unless the use of such pipe is not practical. Due to the footprint size of using concrete pipes, the project was required to explore the use of an alternative product. The proposed system is currently shown using the ADS SC-800 Chamber Detention system. An analysis of a concrete pipe detention system with a similar depth was considered, and an exhibit for the use of the concrete pipe is provided. (See Appendix G: Water Quantity Calculations.)

Conveyance calculations are based on the Manning Formula for uniform pipe flow (See Appendix I: Stormwater Conveyance Calculations). The peak runoff event can be conveyed by an 6-inch pipe with a minimum slope of 1.50% and an 8-inch pipe with a minimum slope of 1.00%.

Table 1A: Predeveloped Catchment Basins

Predeveloped

Basin	Area				Total	
	Pervious		Impervious			
	sf	ac	sf	ac	sf	ac
Basin A	31,100	0.714	0	0.000	31,100	0.714

Table 1B: Proposed Catchment Basins

Proposed

Basin	Area				Total		Flow Q (25-YR)
	Pervious		Impervious				
	sf	ac	sf	ac	sf	ac	cfs
Basin A	314	0.007	30,786	0.707	31,100	0.714	0.65

Table 2: Catchment and Facility table

Catchment/ Facility ID	Drainage Source	Area Managed (sf)	Ownership (private/ public)	Facility Type	Facility Size
WQMH72”-1	Basin A	30,786	Private	Water Quality Manhole	96” Dia Manhole with (9) 18” StormFilters
ADS SC-800 Detention System	Basin A	31,100	Private	Underground Detention Chambers	25.3’x89.3’x3.8’ (60) ADS SC-800 Chambers

Table 3: Pre- vs Post-Construction Stormwater Flow Rate Table

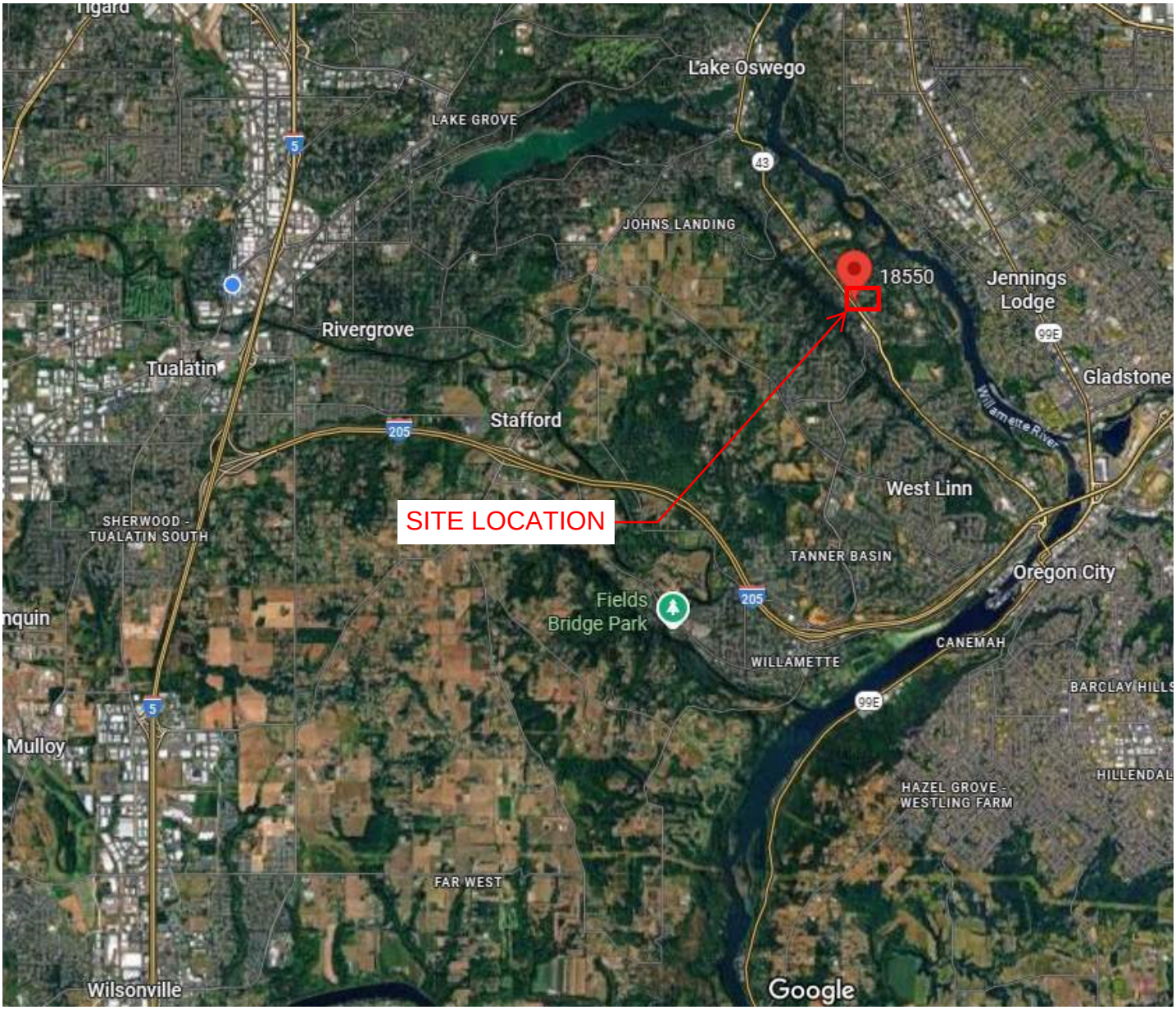
Catchment/ Facility ID	Peak Flow Rate (cfs) for a 24-hour storm					
	2-year		10-year		25-year	
	Pre	Post	Pre	Post	Pre	Post
Basin A	0.02	0.02	0.11	0.09	0.15	0.12

IV. Engineering Conclusion

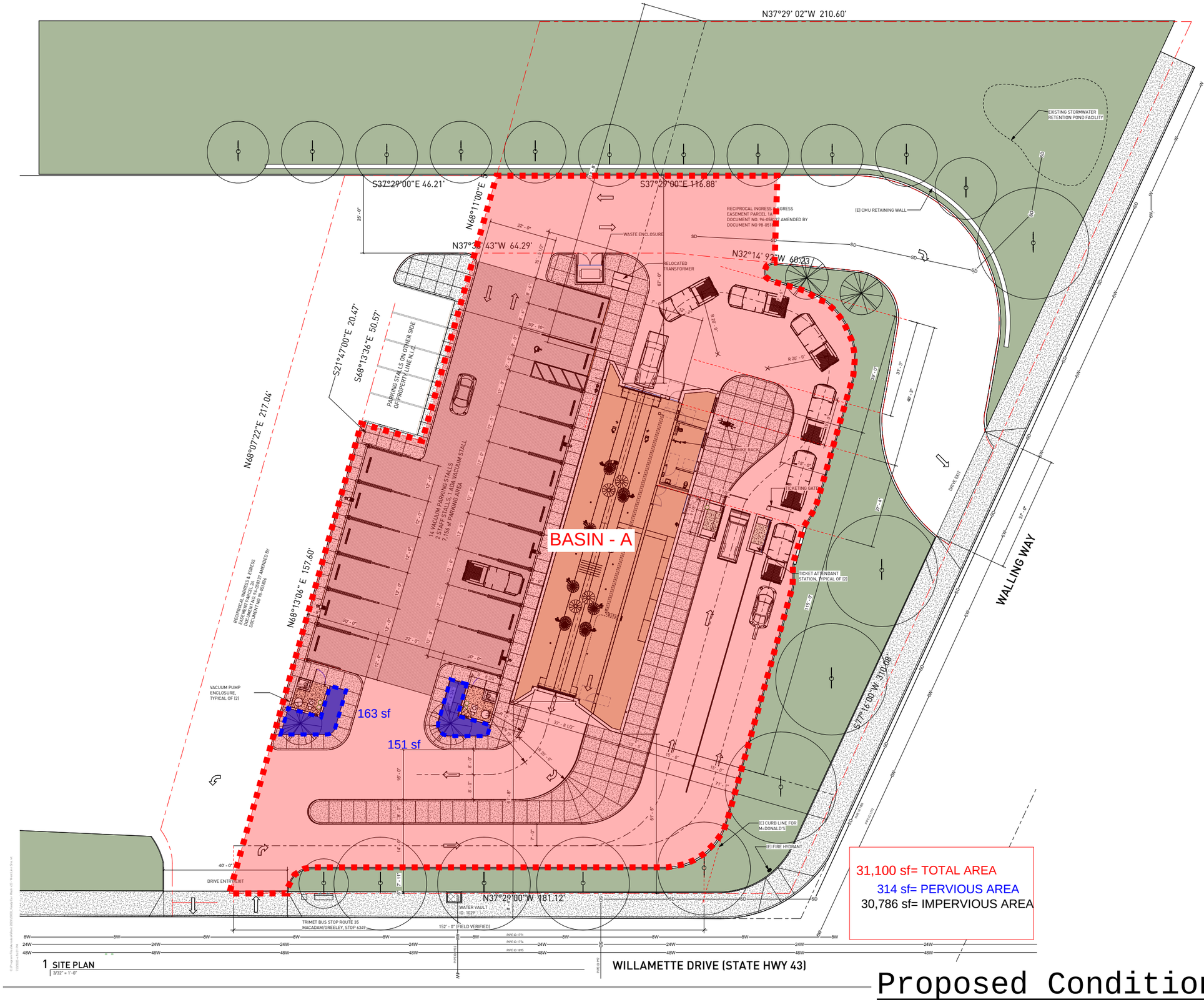
Based on the requirements of the City of West Linn, all facilities and conveyance components have enough capacity to manage the runoff from the required storm event and should be approved as designed.

V. Appendices

Appendix A: Vicinity Map



Appendix B: Basin Maps and Areas



1 SITE PLAN
3/32" = 1'-0"

31,100 sf= TOTAL AREA
314 sf= PERVIOUS AREA
30,786 sf= IMPERVIOUS AREA

Proposed Conditions Basin Map

Appendix C: Assumptions

FROELICH ENGINEERS

Santa Barbara Unit Hydrograph (SBUH) Assumptions:
(used for Water Quality, Flow Control, Conveyance)

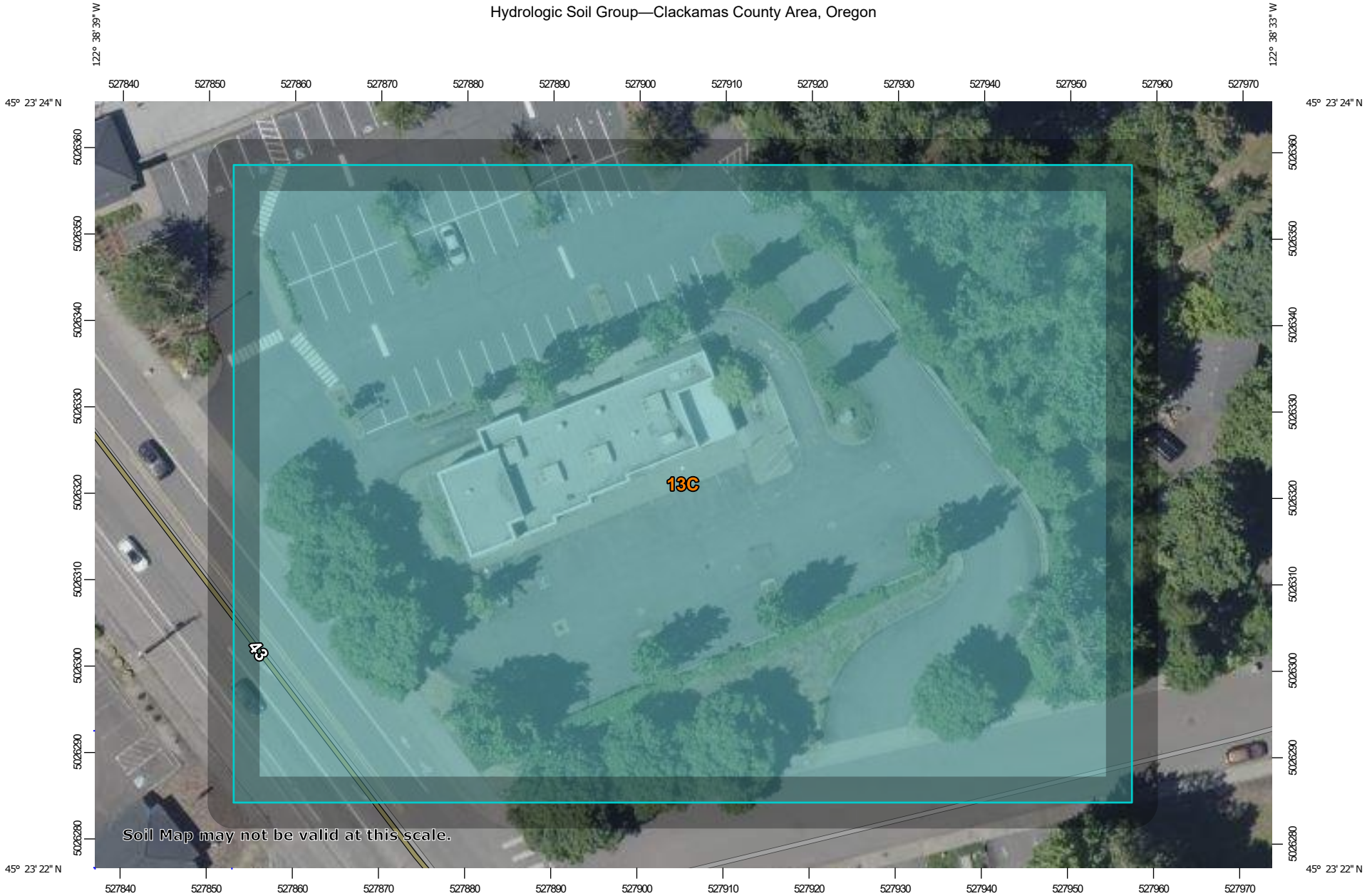
Storm Events:

Water Quality (WQ) Storm Event* =	**1.00***	in/24-hours per West Linn Design Standards 5/25
2-year Storm Event =	**2.50**	in/24-hours per West Linn Design Standards 5/25
10-year Storm Event =	**3.45**	in/24-hours per West Linn Design Standards 5/25
25-year Storm Event =	**3.90**	in/24-hours per West Linn Design Standards 5/25
		*80% of Average Annual Runoff for West Linn
Time of Concentration	**10.0**	minutes
Roughness Coefficient	**0.013**	

Curve Number Assumptions:

NRSC Soil Group =	**C**	
Impervious Area =	**98**	per West Linn Design Standards 5/25
Existing Pervious Area =	**86**	per West Linn Design Standards 5/25
Proposed Pervious Area =	**74**	per West Linn Design Standards 5/25
Pre-development Area =	**70**	per West Linn Design Standards 5/25

Appendix D: Soil Resource Report



Map Scale: 1:625 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 5 10 20 30

Feet
0 30 60 120 180

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 Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

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:
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: Clackamas County Area, Oregon
Survey Area Data: Version 21, Aug 30, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 1, 2024—Jul 1, 2024

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
13C	Cascade silt loam, 8 to 15 percent slopes	C	1.9	100.0%
Totals for Area of Interest			**1.9**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

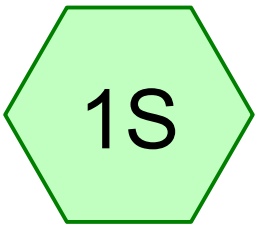
Component Percent Cutoff: None Specified

Tie-break Rule: Higher

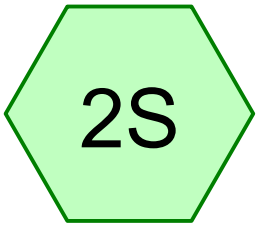
Appendix E: Geotechnical Report

To be provided in final stormwater report

Appendix F: Water Quality Calculations



Total Site (PreDev)



Total Site (PostDev)

Subcat Reach Pond Link

Routing Diagram for 25-C007 Kaady Car Wash
Prepared by Froelich Engineers, Printed 7/23/2025

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Total Site (PreDev) Runoff Area=31,100 sf 0.00% Impervious Runoff Depth=0.00"
Tc=10.0 min CN=70/0 Runoff=0.00 cfs 0.000 af

Subcatchment2S: Total Site (PostDev) Runoff Area=31,100 sf 98.99% Impervious Runoff Depth=0.78"
Tc=5.0 min CN=74/98 Runoff=0.14 cfs 0.047 af

water quality flow

Summary for Subcatchment 1S: Total Site (PreDev)

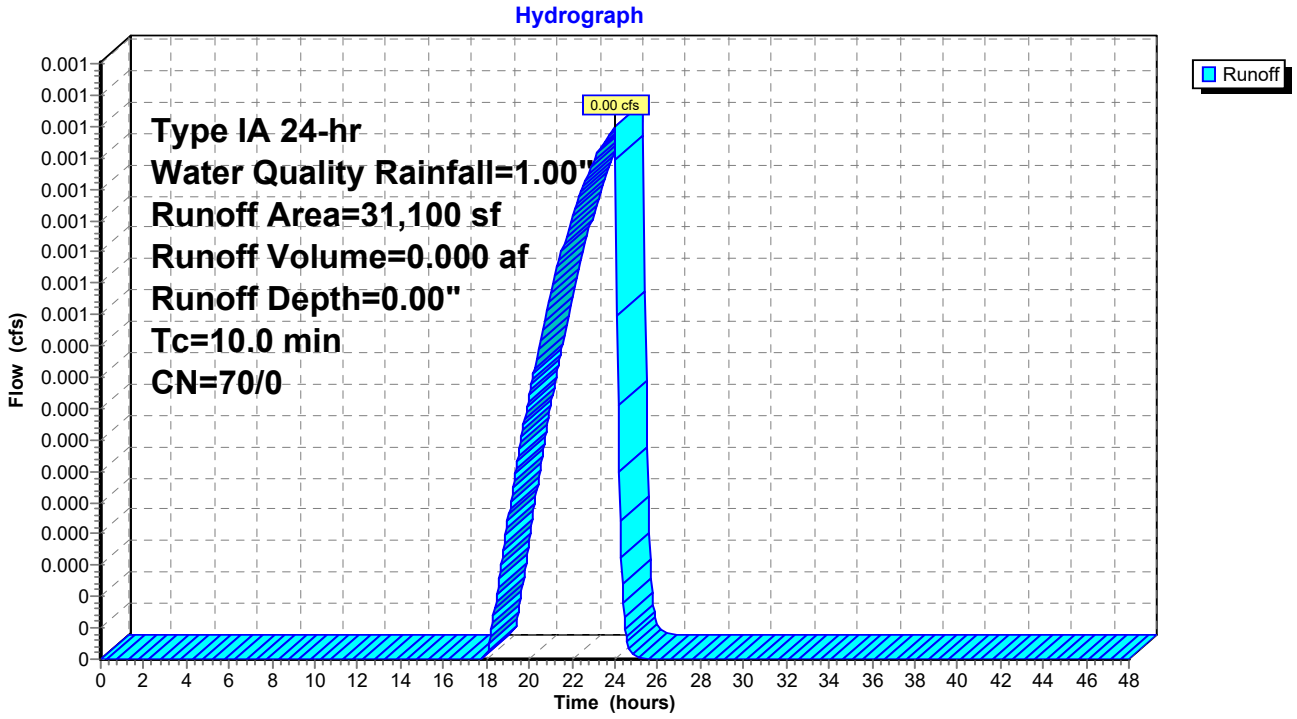
Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr Water Quality Rainfall=1.00"

	Area (sf)	CN	Description
*	31,100	70	
	31,100	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 1S: Total Site (PreDev)



Summary for Subcatchment 2S: Total Site (PostDev)

[49] Hint: Tc<2dt may require smaller dt

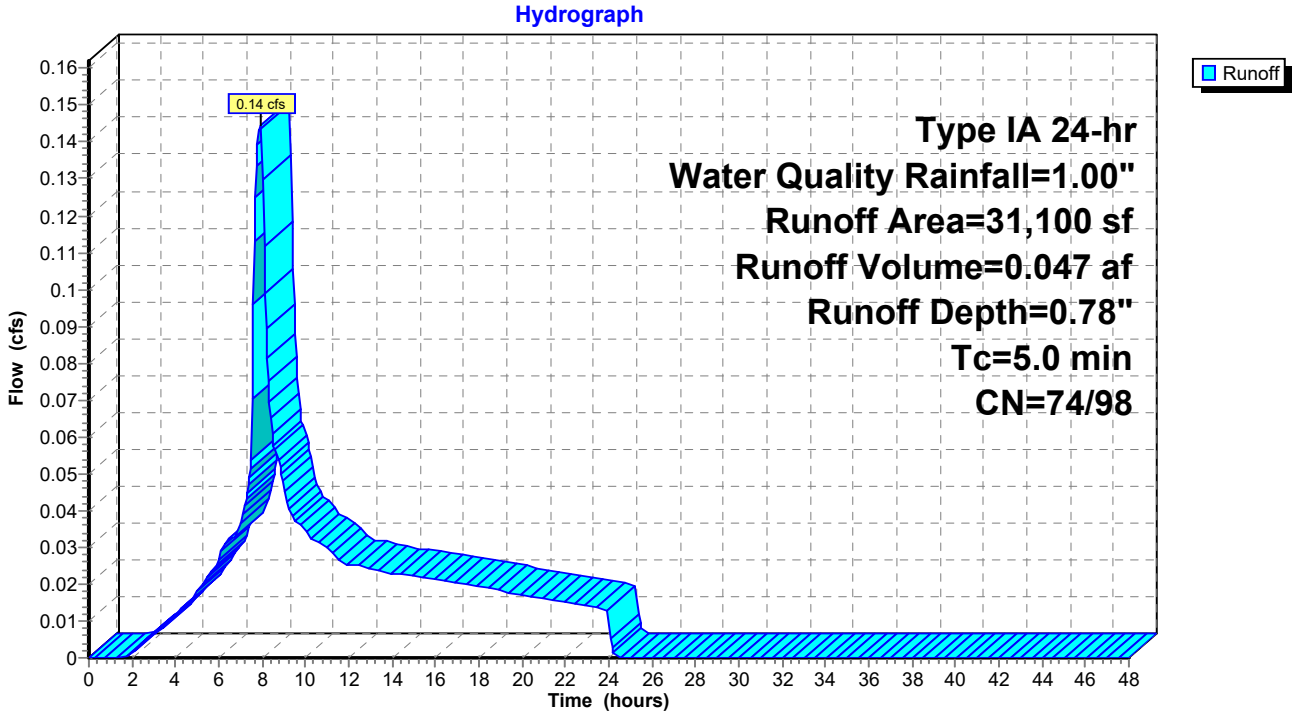
Runoff = 0.14 cfs @ 7.92 hrs, Volume= 0.047 af, Depth= 0.78"
Routed to Pond 3P : Det SC-800

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr Water Quality Rainfall=1.00"

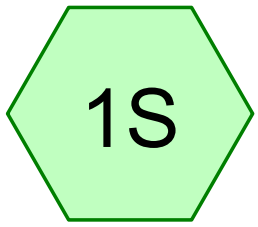
	Area (sf)	CN	Description
*	30,786	98	
*	314	74	
	31,100	98	Weighted Average
	314	74	1.01% Pervious Area
	30,786	98	98.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

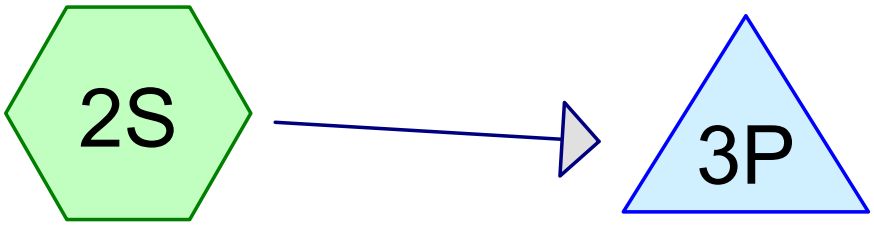
Subcatchment 2S: Total Site (PostDev)



Appendix G: Water Quantity Calculations



Total Site (PreDev)



Total Site (PostDev)

Det SC-800

Subcat Reach Pond Link

Routing Diagram for 25-C007 Kaady Car Wash
Prepared by Froelich Engineers, Printed 7/29/2025

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	Type IA 24-hr		Default	24.00	1	2.50	2
2	10-Year	Type IA 24-hr		Default	24.00	1	3.45	2
3	25-Year	Type IA 24-hr		Default	24.00	1	3.90	2

predev flowrate

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Total Site (PreDev) Runoff Area=31,100 sf 0.00% Impervious Runoff Depth=0.46"
Tc=10.0 min CN=70/0 Runoff=0.02 cfs 0.027 af

Subcatchment2S: Total Site (PostDev) Runoff Area=31,100 sf 98.99% Impervious Runoff Depth=2.25"
Tc=5.0 min CN=74/98 Runoff=0.41 cfs 0.134 af

Pond 3P: Det SC-800 Peak Elev=103.24' Storage=0.109 af Inflow=0.41 cfs 0.134 af
Outflow=0.02 cfs 0.057 af

Total Runoff Area = 1.428 ac Runoff Volume = 0.161 af Average Runoff Depth = 1.35"
50.50% Pervious = 0.721 ac 49.50% Impervious = 0.707 ac

Summary for Subcatchment 1S: Total Site (PreDev)

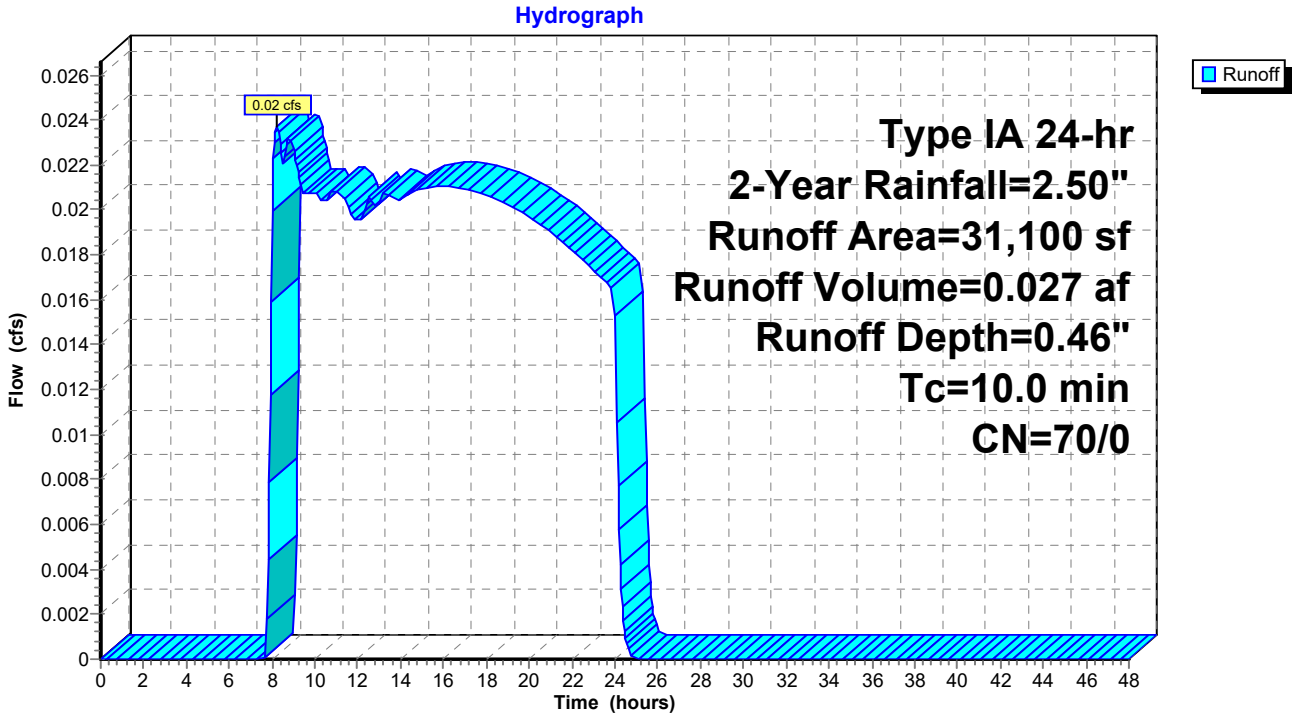
Runoff = 0.02 cfs @ 8.23 hrs, Volume= 0.027 af, Depth= 0.46"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2-Year Rainfall=2.50"

	Area (sf)	CN	Description
*	31,100	70	
	31,100	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 1S: Total Site (PreDev)



Summary for Subcatchment 2S: Total Site (PostDev)

[49] Hint: Tc<2dt may require smaller dt

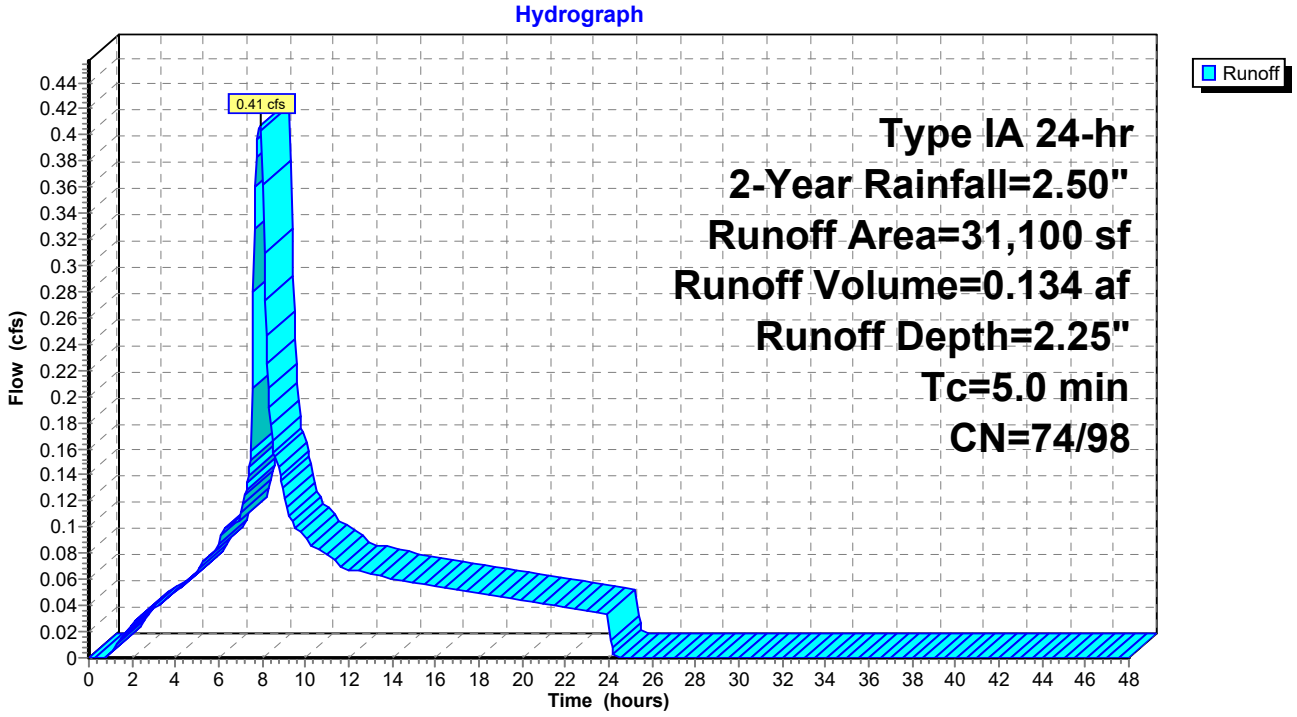
Runoff = 0.41 cfs @ 7.90 hrs, Volume= 0.134 af, Depth= 2.25"
Routed to Pond 3P : Det SC-800

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2-Year Rainfall=2.50"

	Area (sf)	CN	Description
*	30,786	98	
*	314	74	
	31,100	98	Weighted Average
	314	74	1.01% Pervious Area
	30,786	98	98.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: Total Site (PostDev)



Summary for Pond 3P: Det SC-800

Inflow Area = 0.714 ac, 98.99% Impervious, Inflow Depth = 2.25" for 2-Year event
Inflow = 0.41 cfs @ 7.90 hrs, Volume= 0.134 af
Outflow = 0.02 cfs @ 24.08 hrs, Volume= 0.057 af, Atten= 95%, Lag= 971.0 min
Primary = 0.02 cfs @ 24.08 hrs, Volume= 0.057 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 103.24' @ 24.08 hrs Surf.Area= 0.052 ac Storage= 0.109 af

Plug-Flow detention time= 1,215.7 min calculated for 0.057 af (43% of inflow)
Center-of-Mass det. time= 930.2 min (1,604.6 - 674.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	0.049 af	**25.25'W x 89.17'L x 3.75'H Field A** 0.194 af Overall - 0.070 af Embedded = 0.123 af x 40.0% Voids
#2A	100.50'	0.070 af	**ADS_StormTech SC-800 +Cap** x 60 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 60 Chambers in 5 Rows Cap Storage= 3.4 cf x 2 x 5 rows = 34.2 cf
		0.120 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**0.625" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	103.65'	**8.000" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.02 cfs @ 24.08 hrs HW=103.24' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.02 cfs @ 8.63 fps)
2=Orifice/Grate (Controls 0.00 cfs)

Pond 3P: Det SC-800 - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-800 +Cap (ADS StormTech®SC-800 with cap volume)
Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf
Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap
Cap Storage= 3.4 cf x 2 x 5 rows = 34.2 cf

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

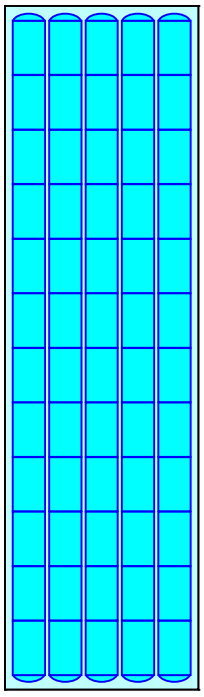
12 Chambers/Row x 7.12' Long +0.88' Cap Length x 2 = 87.17' Row Length +12.0" End Stone x 2 = 89.17' Base Length
5 Rows x 51.0" Wide + 6.0" Spacing x 4 + 12.0" Side Stone x 2 = 25.25' Base Width
6.0" Stone Base + 33.0" Chamber Height + 6.0" Stone Cover = 3.75' Field Height

60 Chambers x 50.6 cf + 3.4 cf Cap Volume x 2 x 5 Rows = 3,069.7 cf Chamber Storage

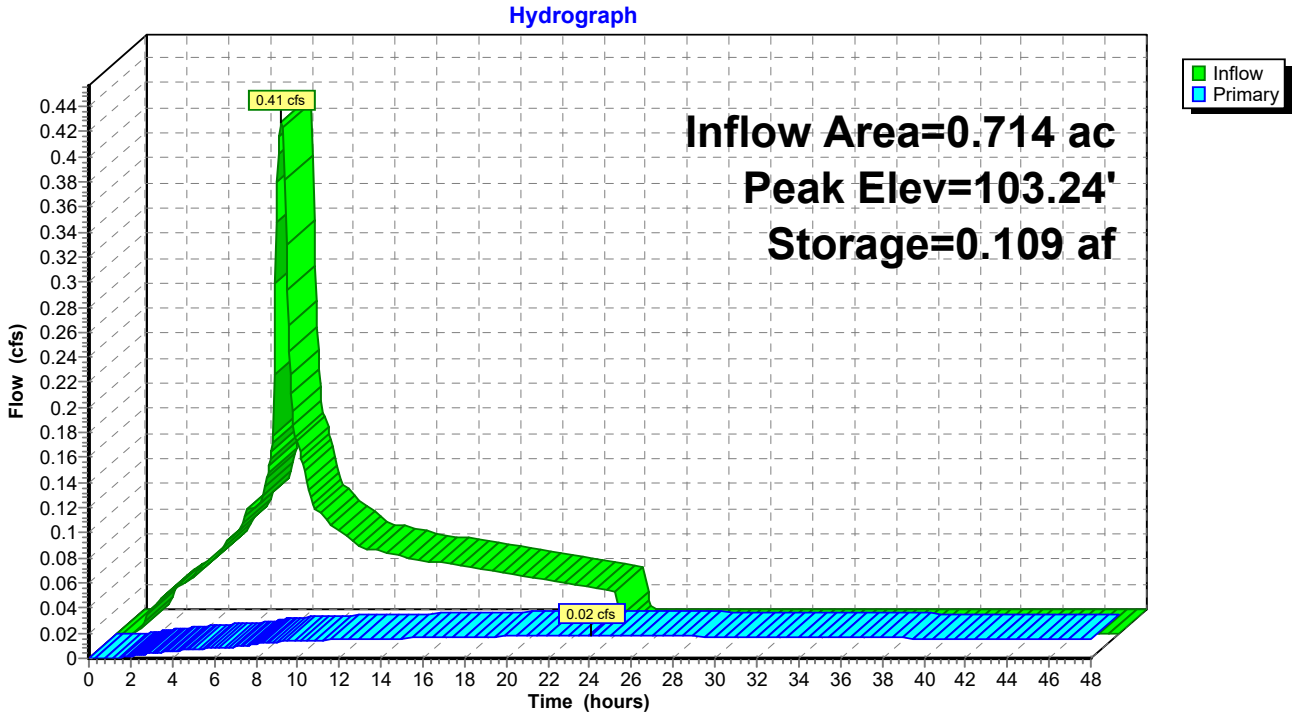
8,443.0 cf Field - 3,069.7 cf Chambers = 5,373.2 cf Stone x 40.0% Voids = 2,149.3 cf Stone Storage

Chamber Storage + Stone Storage = 5,219.0 cf = 0.120 af
Overall Storage Efficiency = 61.8%
Overall System Size = 89.17' x 25.25' x 3.75'

60 Chambers
312.7 cy Field
199.0 cy Stone



Pond 3P: Det SC-800



predev flowrate

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Total Site (PreDev) Runoff Area=31,100 sf 0.00% Impervious Runoff Depth=0.98"
Tc=10.0 min CN=70/0 Runoff=0.11 cfs 0.058 af

Subcatchment2S: Total Site (PostDev) Runoff Area=31,100 sf 98.99% Impervious Runoff Depth=3.20"
Tc=5.0 min CN=74/98 Runoff=0.57 cfs 0.190 af

Pond 3P: Det SC-800 Peak Elev=103.69' Storage=0.119 af Inflow=0.57 cfs 0.190 af
Outflow=0.09 cfs 0.106 af

Total Runoff Area = 1.428 ac Runoff Volume = 0.248 af Average Runoff Depth = 2.09"
50.50% Pervious = 0.721 ac 49.50% Impervious = 0.707 ac

Summary for Subcatchment 1S: Total Site (PreDev)

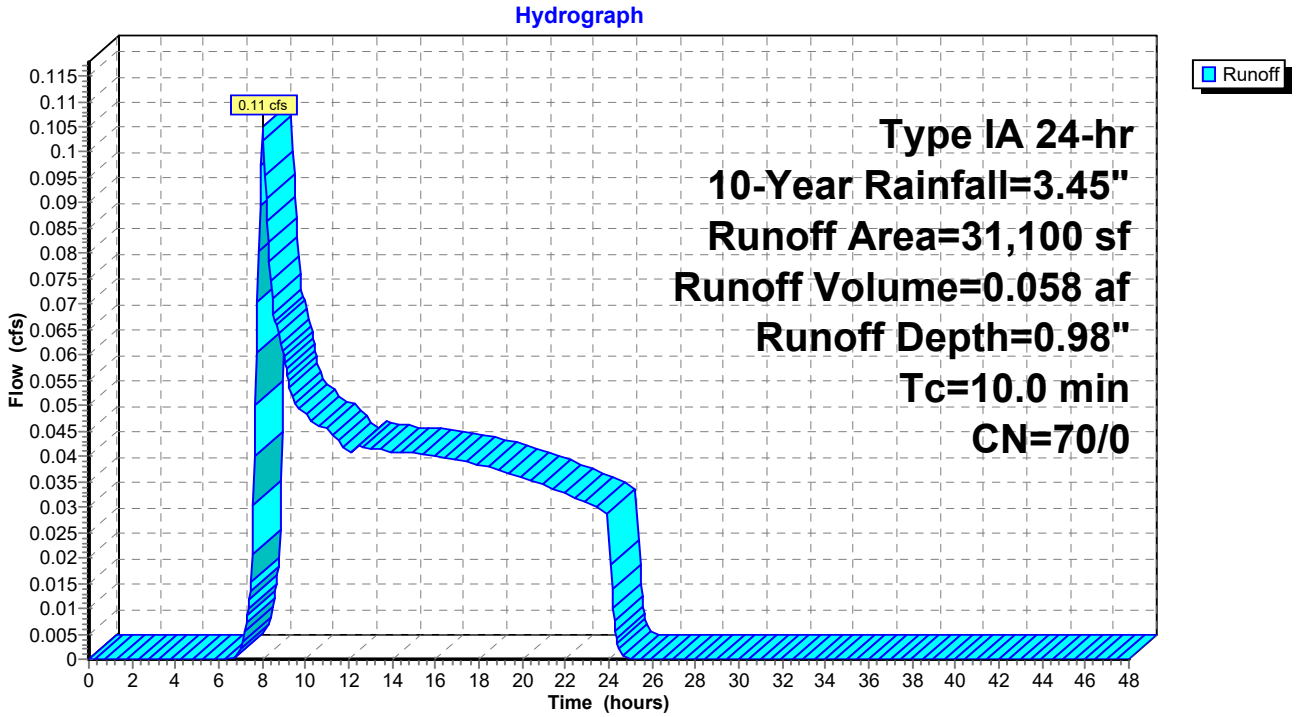
Runoff = 0.11 cfs @ 8.03 hrs, Volume= 0.058 af, Depth= 0.98"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10-Year Rainfall=3.45"

	Area (sf)	CN	Description
*	31,100	70	
	31,100	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 1S: Total Site (PreDev)



Summary for Subcatchment 2S: Total Site (PostDev)

[49] Hint: Tc<2dt may require smaller dt

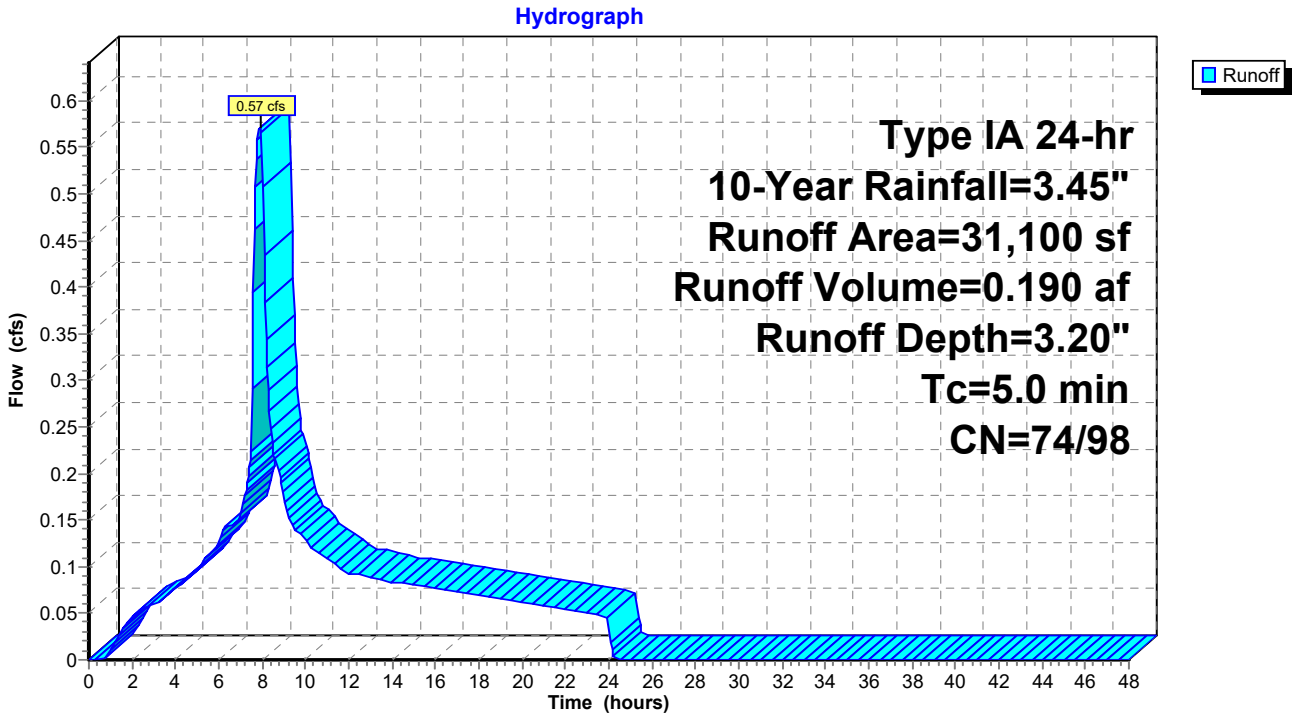
Runoff = 0.57 cfs @ 7.90 hrs, Volume= 0.190 af, Depth= 3.20"
Routed to Pond 3P : Det SC-800

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10-Year Rainfall=3.45"

	Area (sf)	CN	Description
*	30,786	98	
*	314	74	
	31,100	98	Weighted Average
	314	74	1.01% Pervious Area
	30,786	98	98.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: Total Site (PostDev)



Summary for Pond 3P: Det SC-800

Inflow Area = 0.714 ac, 98.99% Impervious, Inflow Depth = 3.20" for 10-Year event
Inflow = 0.57 cfs @ 7.90 hrs, Volume= 0.190 af
Outflow = 0.09 cfs @ 13.62 hrs, Volume= 0.106 af, Atten= 85%, Lag= 343.6 min
Primary = 0.09 cfs @ 13.62 hrs, Volume= 0.106 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 103.69' @ 13.62 hrs Surf.Area= 0.052 ac Storage= 0.119 af

Plug-Flow detention time= 945.2 min calculated for 0.106 af (56% of inflow)
Center-of-Mass det. time= 700.6 min (1,365.7 - 665.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	0.049 af	**25.25'W x 89.17'L x 3.75'H Field A** 0.194 af Overall - 0.070 af Embedded = 0.123 af x 40.0% Voids
#2A	100.50'	0.070 af	**ADS_StormTech SC-800 +Cap** x 60 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 60 Chambers in 5 Rows Cap Storage= 3.4 cf x 2 x 5 rows = 34.2 cf
		0.120 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**0.625" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	103.65'	**8.000" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.08 cfs @ 13.62 hrs HW=103.69' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.02 cfs @ 9.22 fps)
2=Orifice/Grate (Weir Controls 0.06 cfs @ 0.68 fps)

Pond 3P: Det SC-800 - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-800 +Cap (ADS StormTech®SC-800 with cap volume)
Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf
Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap
Cap Storage= 3.4 cf x 2 x 5 rows = 34.2 cf

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

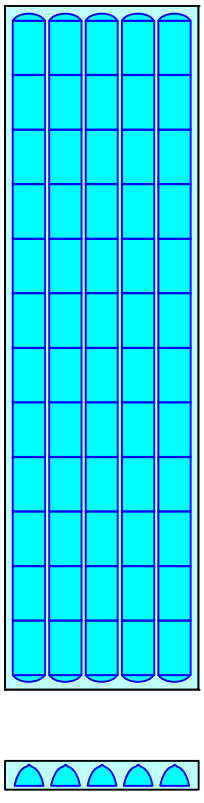
12 Chambers/Row x 7.12' Long +0.88' Cap Length x 2 = 87.17' Row Length +12.0" End Stone x 2 = 89.17' Base Length
5 Rows x 51.0" Wide + 6.0" Spacing x 4 + 12.0" Side Stone x 2 = 25.25' Base Width
6.0" Stone Base + 33.0" Chamber Height + 6.0" Stone Cover = 3.75' Field Height

60 Chambers x 50.6 cf + 3.4 cf Cap Volume x 2 x 5 Rows = 3,069.7 cf Chamber Storage

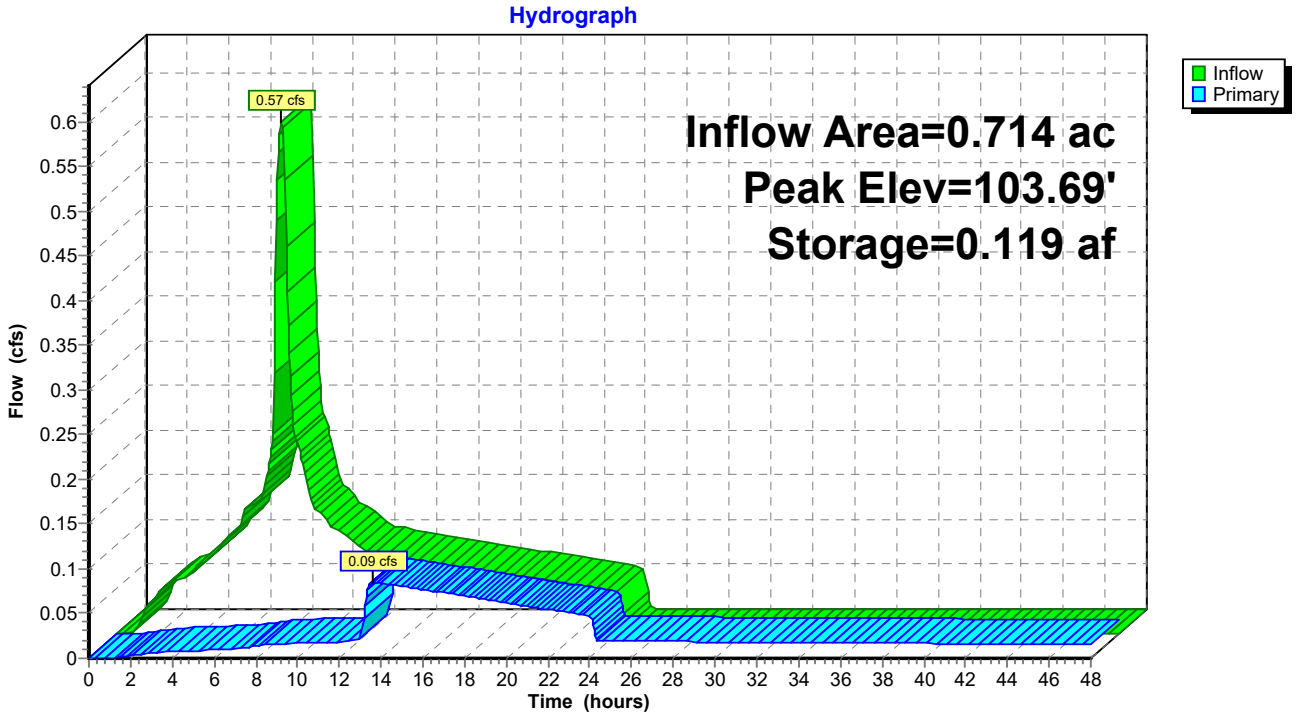
8,443.0 cf Field - 3,069.7 cf Chambers = 5,373.2 cf Stone x 40.0% Voids = 2,149.3 cf Stone Storage

Chamber Storage + Stone Storage = 5,219.0 cf = 0.120 af
Overall Storage Efficiency = 61.8%
Overall System Size = 89.17' x 25.25' x 3.75'

60 Chambers
312.7 cy Field
199.0 cy Stone



Pond 3P: Det SC-800



predev flowrate

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Total Site (PreDev) Runoff Area=31,100 sf 0.00% Impervious Runoff Depth=1.26"
Tc=10.0 min CN=70/0 Runoff=0.15 cfs 0.075 af

Subcatchment2S: Total Site (PostDev) Runoff Area=31,100 sf 98.99% Impervious Runoff Depth=3.64"
Tc=5.0 min CN=74/98 Runoff=0.65 cfs 0.217 af

Pond 3P: Det SC-800 Peak Elev=103.71' Storage=0.119 af Inflow=0.65 cfs 0.217 af
Outflow=0.12 cfs 0.133 af

Total Runoff Area = 1.428 ac Runoff Volume = 0.292 af Average Runoff Depth = 2.45"
50.50% Pervious = 0.721 ac 49.50% Impervious = 0.707 ac

Peak flowrate for conveyance

Summary for Subcatchment 1S: Total Site (PreDev)

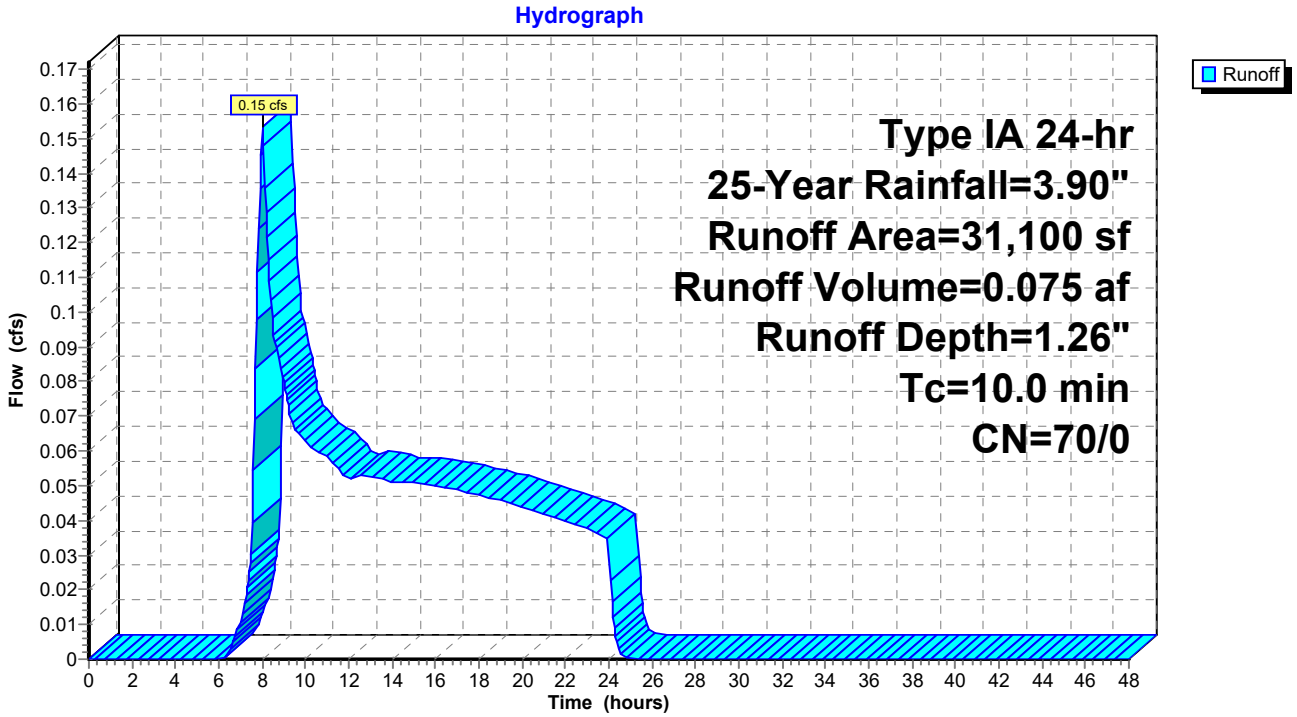
Runoff = 0.15 cfs @ 8.02 hrs, Volume= 0.075 af, Depth= 1.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25-Year Rainfall=3.90"

	Area (sf)	CN	Description
*	31,100	70	
	31,100	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 1S: Total Site (PreDev)



Summary for Subcatchment 2S: Total Site (PostDev)

[49] Hint: Tc<2dt may require smaller dt

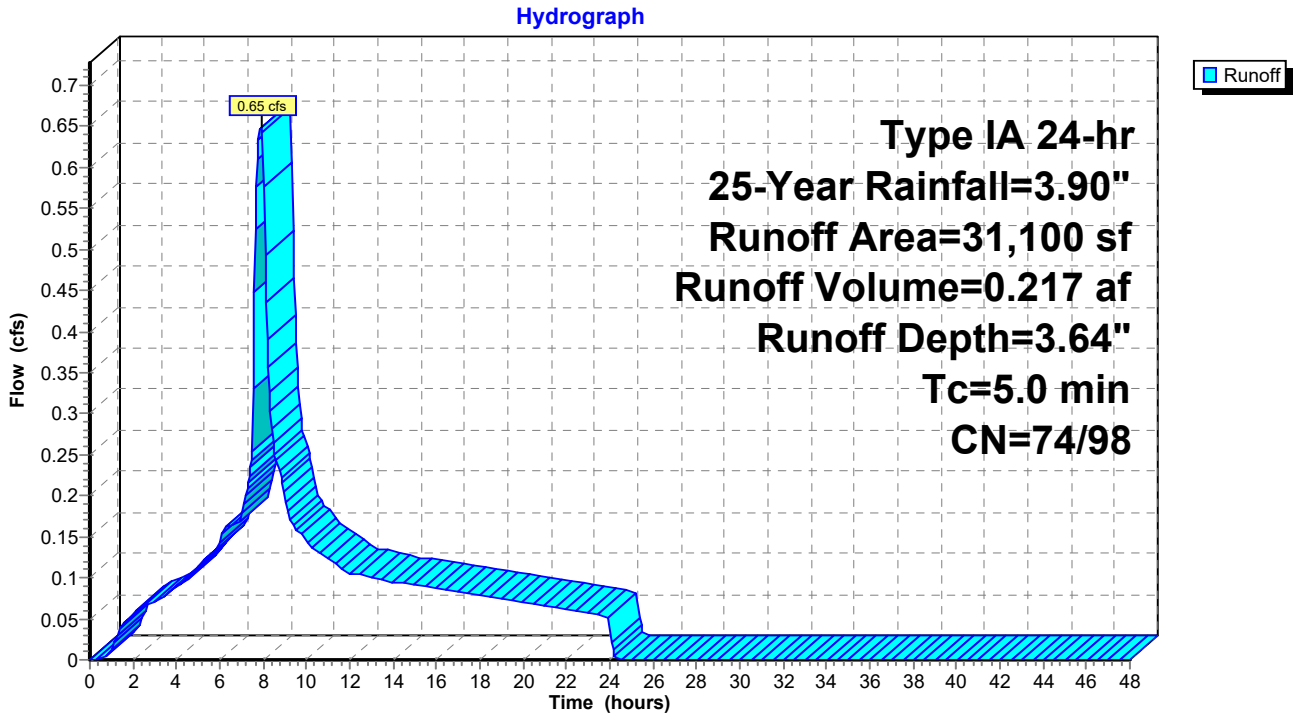
Runoff = 0.65 cfs @ 7.90 hrs, Volume= 0.217 af, Depth= 3.64"
Routed to Pond 3P : Det SC-800

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25-Year Rainfall=3.90"

	Area (sf)	CN	Description
*	30,786	98	
*	314	74	
	31,100	98	Weighted Average
	314	74	1.01% Pervious Area
	30,786	98	98.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: Total Site (PostDev)



Summary for Pond 3P: Det SC-800

Inflow Area = 0.714 ac, 98.99% Impervious, Inflow Depth = 3.64" for 25-Year event
Inflow = 0.65 cfs @ 7.90 hrs, Volume= 0.217 af
Outflow = 0.12 cfs @ 11.21 hrs, Volume= 0.133 af, Atten= 82%, Lag= 198.8 min
Primary = 0.12 cfs @ 11.21 hrs, Volume= 0.133 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 103.71' @ 11.21 hrs Surf.Area= 0.052 ac Storage= 0.119 af

Plug-Flow detention time= 819.7 min calculated for 0.133 af (61% of inflow)
Center-of-Mass det. time= 595.3 min (1,257.4 - 662.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	0.049 af	**25.25'W x 89.17'L x 3.75'H Field A** 0.194 af Overall - 0.070 af Embedded = 0.123 af x 40.0% Voids
#2A	100.50'	0.070 af	**ADS_StormTech SC-800 +Cap** x 60 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 60 Chambers in 5 Rows Cap Storage= 3.4 cf x 2 x 5 rows = 34.2 cf
		0.120 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**0.625" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	103.65'	**8.000" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.12 cfs @ 11.21 hrs HW=103.71' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.02 cfs @ 9.24 fps)
2=Orifice/Grate (Weir Controls 0.10 cfs @ 0.80 fps)

Pond 3P: Det SC-800 - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-800 +Cap (ADS StormTech®SC-800 with cap volume)
Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf
Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap
Cap Storage= 3.4 cf x 2 x 5 rows = 34.2 cf

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

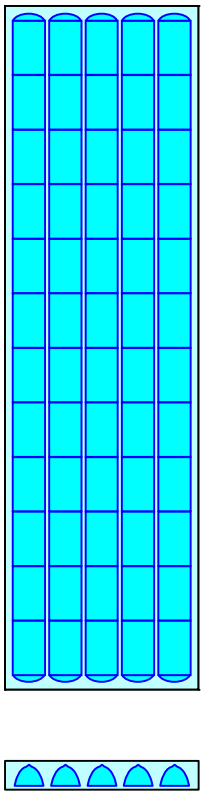
12 Chambers/Row x 7.12' Long +0.88' Cap Length x 2 = 87.17' Row Length +12.0" End Stone x 2 = 89.17' Base Length
5 Rows x 51.0" Wide + 6.0" Spacing x 4 + 12.0" Side Stone x 2 = 25.25' Base Width
6.0" Stone Base + 33.0" Chamber Height + 6.0" Stone Cover = 3.75' Field Height

60 Chambers x 50.6 cf + 3.4 cf Cap Volume x 2 x 5 Rows = 3,069.7 cf Chamber Storage

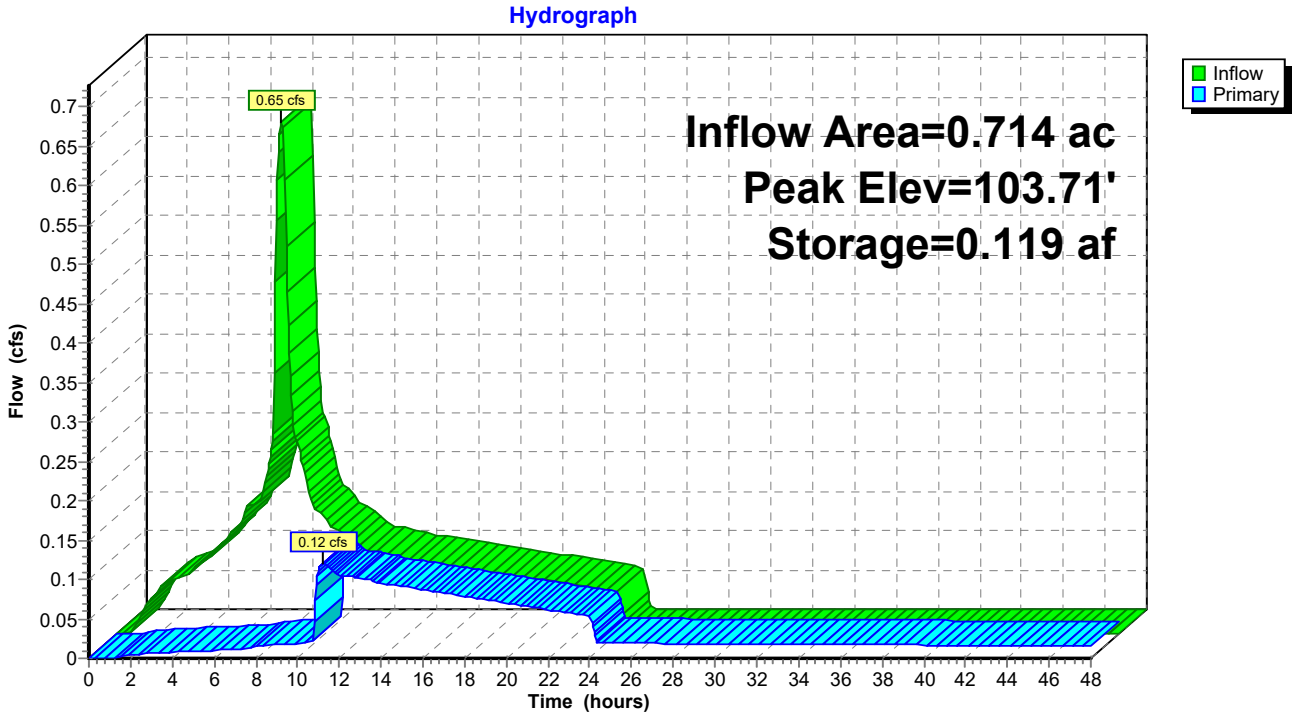
8,443.0 cf Field - 3,069.7 cf Chambers = 5,373.2 cf Stone x 40.0% Voids = 2,149.3 cf Stone Storage

Chamber Storage + Stone Storage = 5,219.0 cf = 0.120 af
Overall Storage Efficiency = 61.8%
Overall System Size = 89.17' x 25.25' x 3.75'

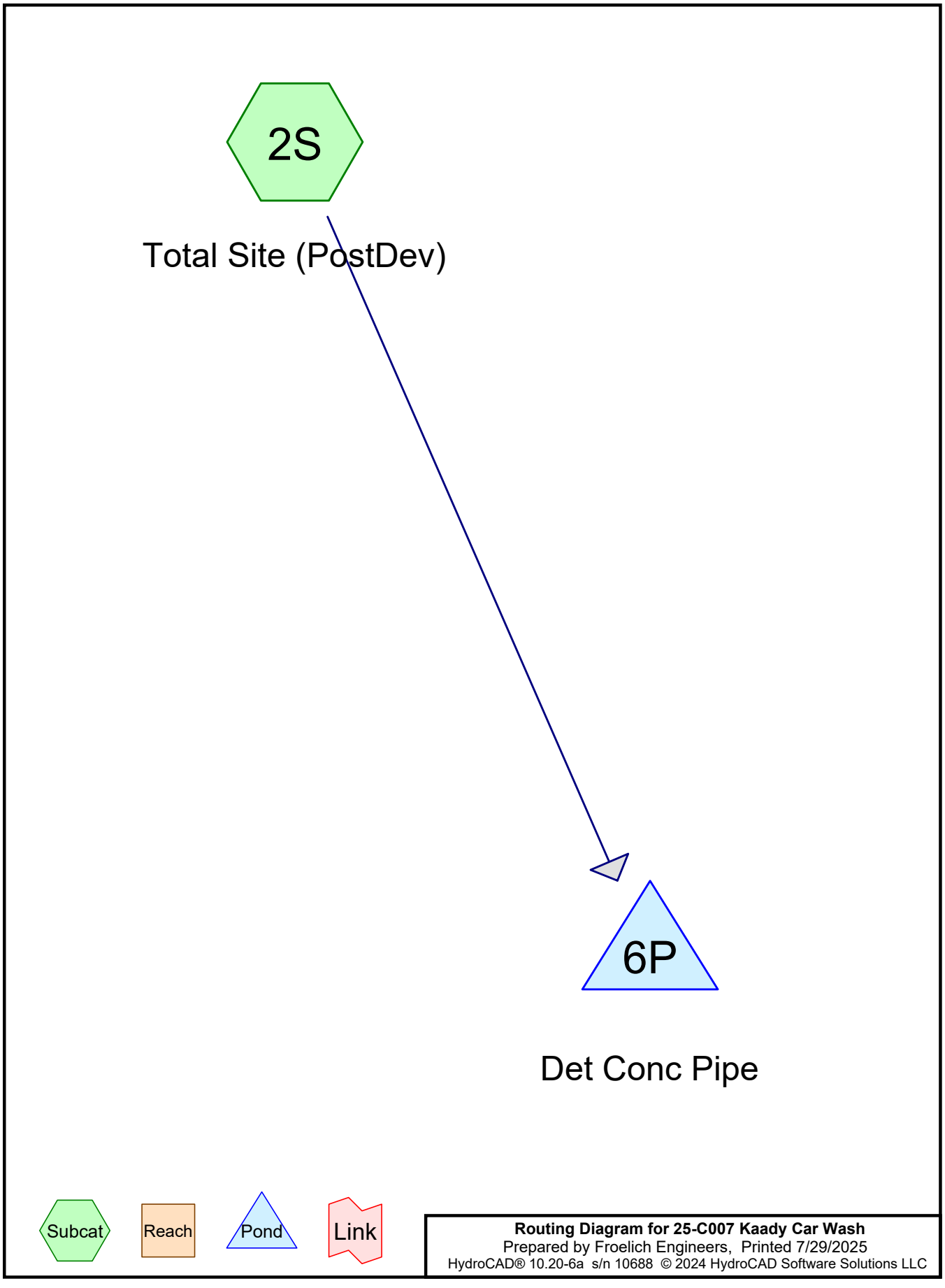
60 Chambers
312.7 cy Field
199.0 cy Stone



Pond 3P: Det SC-800



CONCRETE DETENTION PIPE ANALYSIS



Routing Diagram for 25-C007 Kaady Car Wash
Prepared by Froelich Engineers, Printed 7/29/2025

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	Type IA 24-hr		Default	24.00	1	2.50	2
2	10-Year	Type IA 24-hr		Default	24.00	1	3.45	2
3	25-Year	Type IA 24-hr		Default	24.00	1	3.90	2

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment2S: Total Site (PostDev) Runoff Area=31,100 sf 98.99% Impervious Runoff Depth=2.25"
Tc=5.0 min CN=74/98 Runoff=0.41 cfs 0.134 af

Pond 6P: Det Conc Pipe Peak Elev=102.63' Storage=0.105 af Inflow=0.41 cfs 0.134 af
Outflow=0.02 cfs 0.066 af

Total Runoff Area = 0.714 ac Runoff Volume = 0.134 af Average Runoff Depth = 2.25"
1.01% Pervious = 0.007 ac 98.99% Impervious = 0.707 ac

Summary for Subcatchment 2S: Total Site (PostDev)

[49] Hint: Tc<2dt may require smaller dt

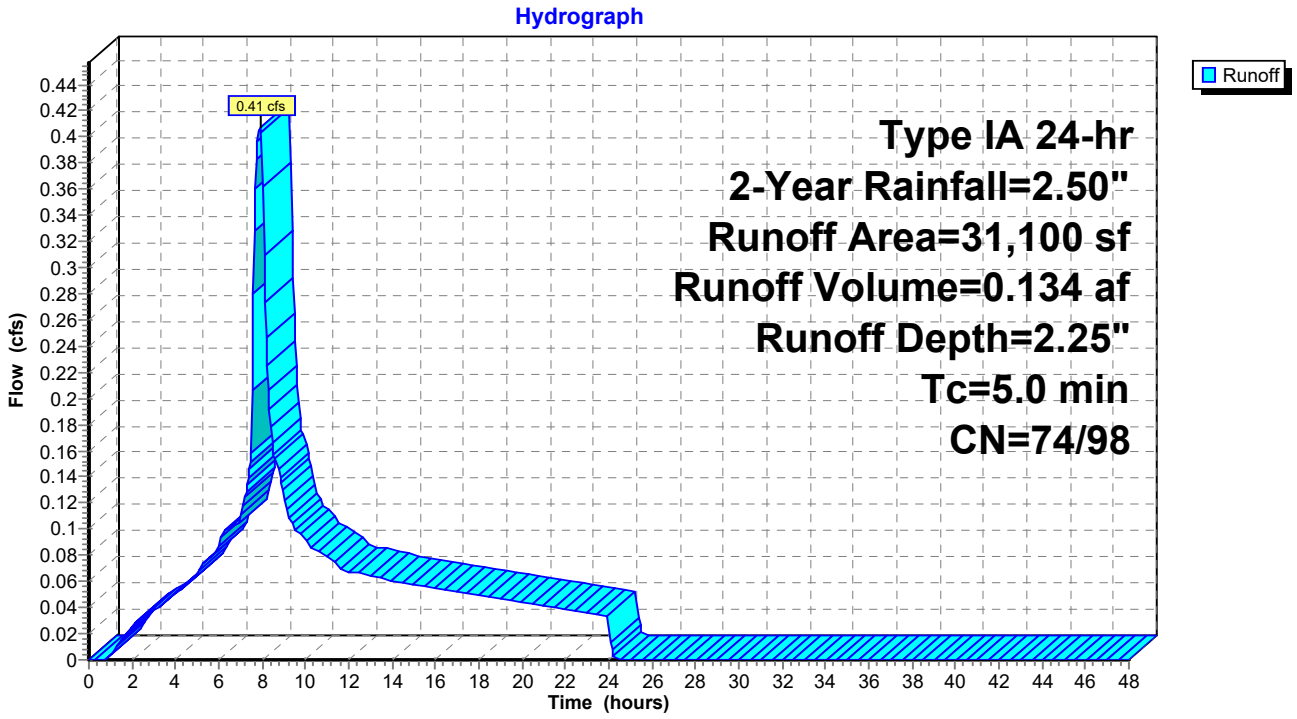
Runoff = 0.41 cfs @ 7.90 hrs, Volume= 0.134 af, Depth= 2.25"
Routed to Pond 6P : Det Conc Pipe

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2-Year Rainfall=2.50"

	Area (sf)	CN	Description
*	30,786	98	
*	314	74	
	31,100	98	Weighted Average
	314	74	1.01% Pervious Area
	30,786	98	98.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: Total Site (PostDev)



Summary for Pond 6P: Det Conc Pipe

Inflow Area = 0.714 ac, 98.99% Impervious, Inflow Depth = 2.25" for 2-Year event
Inflow = 0.41 cfs @ 7.90 hrs, Volume= 0.134 af
Outflow = 0.02 cfs @ 24.07 hrs, Volume= 0.066 af, Atten= 95%, Lag= 970.2 min
Primary = 0.02 cfs @ 24.07 hrs, Volume= 0.066 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 102.63' @ 24.07 hrs Surf.Area= 0.065 ac Storage= 0.105 af

Plug-Flow detention time= 1,181.4 min calculated for 0.066 af (49% of inflow)
Center-of-Mass det. time= 915.5 min (1,590.0 - 674.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	0.028 af	**22.00'W x 129.00'L x 3.08'H Field A** 0.201 af Overall - 0.132 af Embedded = 0.069 af x 40.0% Voids
#2A	100.00'	0.087 af	**RCP Round 30** x 96 Inside #1 Inside= 30.0"W x 30.0"H => 4.91 sf x 8.00'L = 39.3 cf Outside= 37.0"W x 37.0"H => 7.46 sf x 8.00'L = 59.7 cf 96 Chambers in 6 Rows
		0.114 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**0.700" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	102.90'	**8.000" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.02 cfs @ 24.07 hrs HW=102.63' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.02 cfs @ 7.76 fps)
└—**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 6P: Det Conc Pipe - Chamber Wizard Field A

Chamber Model = RCP Round 30 (Round Reinforced Concrete Pipe)
Inside= 30.0"W x 30.0"H => 4.91 sf x 8.00'L = 39.3 cf
Outside= 37.0"W x 37.0"H => 7.46 sf x 8.00'L = 59.7 cf

37.0" Wide + 6.0" Spacing = 43.0" C-C Row Spacing

16 Chambers/Row x 8.00' Long = 128.00' Row Length +6.0" End Stone x 2 = 129.00' Base Length
6 Rows x 37.0" Wide + 6.0" Spacing x 5 + 6.0" Side Stone x 2 = 22.00' Base Width
37.0" Chamber Height = 3.08' Field Height

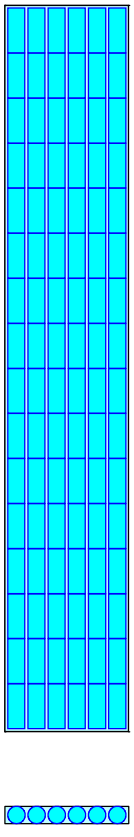
96 Chambers x 39.3 cf = 3,769.9 cf Chamber Storage
96 Chambers x 59.7 cf = 5,732.0 cf Displacement

8,750.5 cf Field - 5,732.0 cf Chambers = 3,018.5 cf Stone x 40.0% Voids = 1,207.4 cf Stone Storage

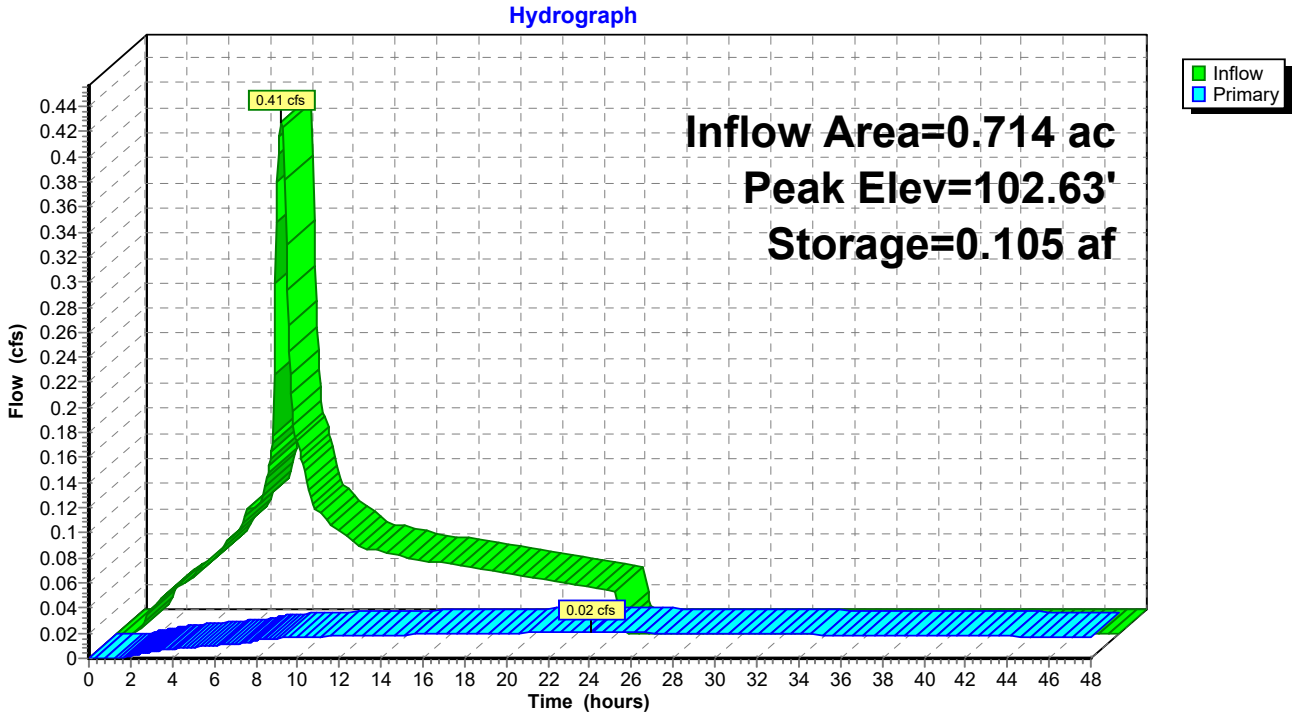
Chamber Storage + Stone Storage = 4,977.3 cf = 0.114 af
Overall Storage Efficiency = 56.9%
Overall System Size = 129.00' x 22.00' x 3.08'

OVERALL SIZE

96 Chambers
324.1 cy Field
111.8 cy Stone



Pond 6P: Det Conc Pipe



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment2S: Total Site (PostDev) Runoff Area=31,100 sf 98.99% Impervious Runoff Depth=3.20"
Tc=5.0 min CN=74/98 Runoff=0.57 cfs 0.190 af

Pond 6P: Det Conc Pipe Peak Elev=102.95' Storage=0.111 af Inflow=0.57 cfs 0.190 af
Outflow=0.09 cfs 0.117 af

Total Runoff Area = 0.714 ac Runoff Volume = 0.190 af Average Runoff Depth = 3.20"
1.01% Pervious = 0.007 ac 98.99% Impervious = 0.707 ac

Summary for Subcatchment 2S: Total Site (PostDev)

[49] Hint: Tc<2dt may require smaller dt

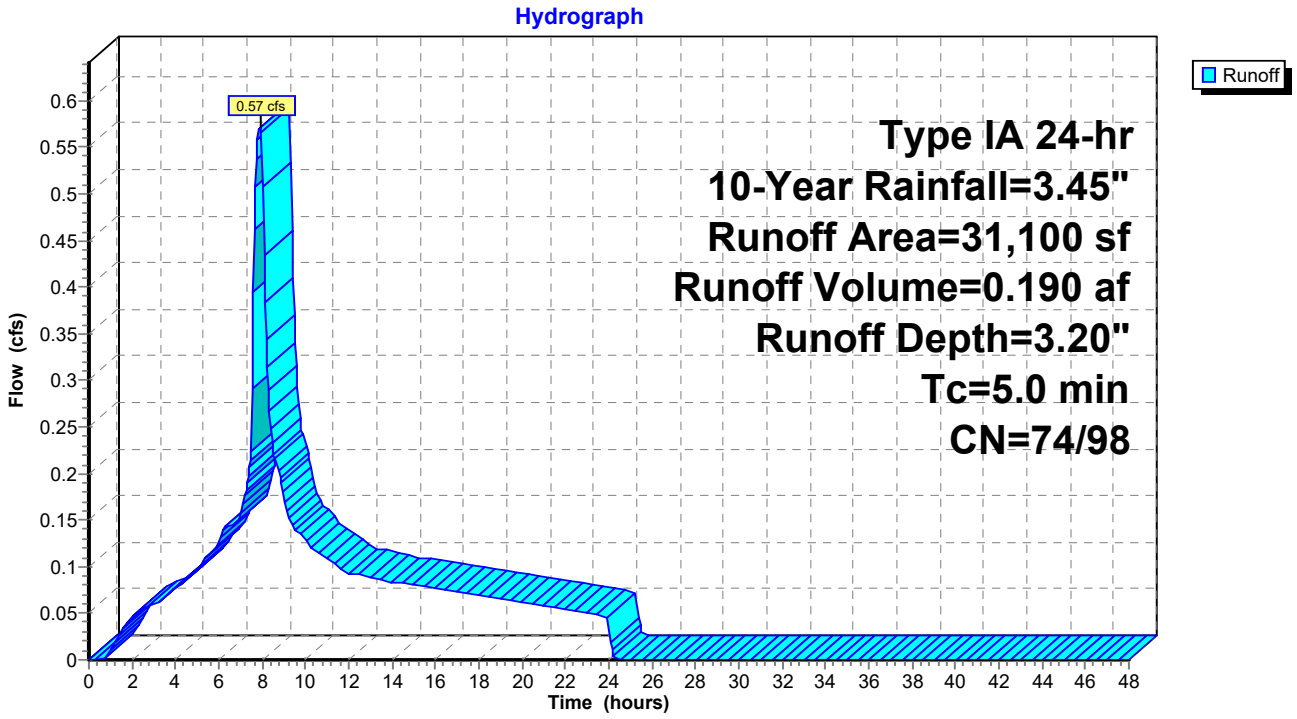
Runoff = 0.57 cfs @ 7.90 hrs, Volume= 0.190 af, Depth= 3.20"
Routed to Pond 6P : Det Conc Pipe

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10-Year Rainfall=3.45"

	Area (sf)	CN	Description
*	30,786	98	
*	314	74	
	31,100	98	Weighted Average
	314	74	1.01% Pervious Area
	30,786	98	98.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: Total Site (PostDev)



Summary for Pond 6P: Det Conc Pipe

Inflow Area = 0.714 ac, 98.99% Impervious, Inflow Depth = 3.20" for 10-Year event
Inflow = 0.57 cfs @ 7.90 hrs, Volume= 0.190 af
Outflow = 0.09 cfs @ 12.65 hrs, Volume= 0.117 af, Atten= 84%, Lag= 285.2 min
Primary = 0.09 cfs @ 12.65 hrs, Volume= 0.117 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 102.95' @ 12.65 hrs Surf.Area= 0.065 ac Storage= 0.111 af

Plug-Flow detention time= 908.7 min calculated for 0.117 af (62% of inflow)
Center-of-Mass det. time= 684.7 min (1,349.8 - 665.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	0.028 af	**22.00'W x 129.00'L x 3.08'H Field A** 0.201 af Overall - 0.132 af Embedded = 0.069 af x 40.0% Voids
#2A	100.00'	0.087 af	**RCP Round 30** x 96 Inside #1 Inside= 30.0"W x 30.0"H => 4.91 sf x 8.00'L = 39.3 cf Outside= 37.0"W x 37.0"H => 7.46 sf x 8.00'L = 59.7 cf 96 Chambers in 6 Rows
		0.114 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**0.700" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	102.90'	**8.000" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.09 cfs @ 12.65 hrs HW=102.95' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.02 cfs @ 8.22 fps)
└**2=Orifice/Grate** (Weir Controls 0.07 cfs @ 0.70 fps)

Pond 6P: Det Conc Pipe - Chamber Wizard Field A

Chamber Model = RCP Round 30 (Round Reinforced Concrete Pipe)
Inside= 30.0"W x 30.0"H => 4.91 sf x 8.00'L = 39.3 cf
Outside= 37.0"W x 37.0"H => 7.46 sf x 8.00'L = 59.7 cf

37.0" Wide + 6.0" Spacing = 43.0" C-C Row Spacing

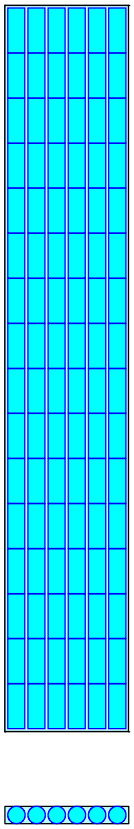
16 Chambers/Row x 8.00' Long = 128.00' Row Length +6.0" End Stone x 2 = 129.00' Base Length
6 Rows x 37.0" Wide + 6.0" Spacing x 5 + 6.0" Side Stone x 2 = 22.00' Base Width
37.0" Chamber Height = 3.08' Field Height

96 Chambers x 39.3 cf = 3,769.9 cf Chamber Storage
96 Chambers x 59.7 cf = 5,732.0 cf Displacement

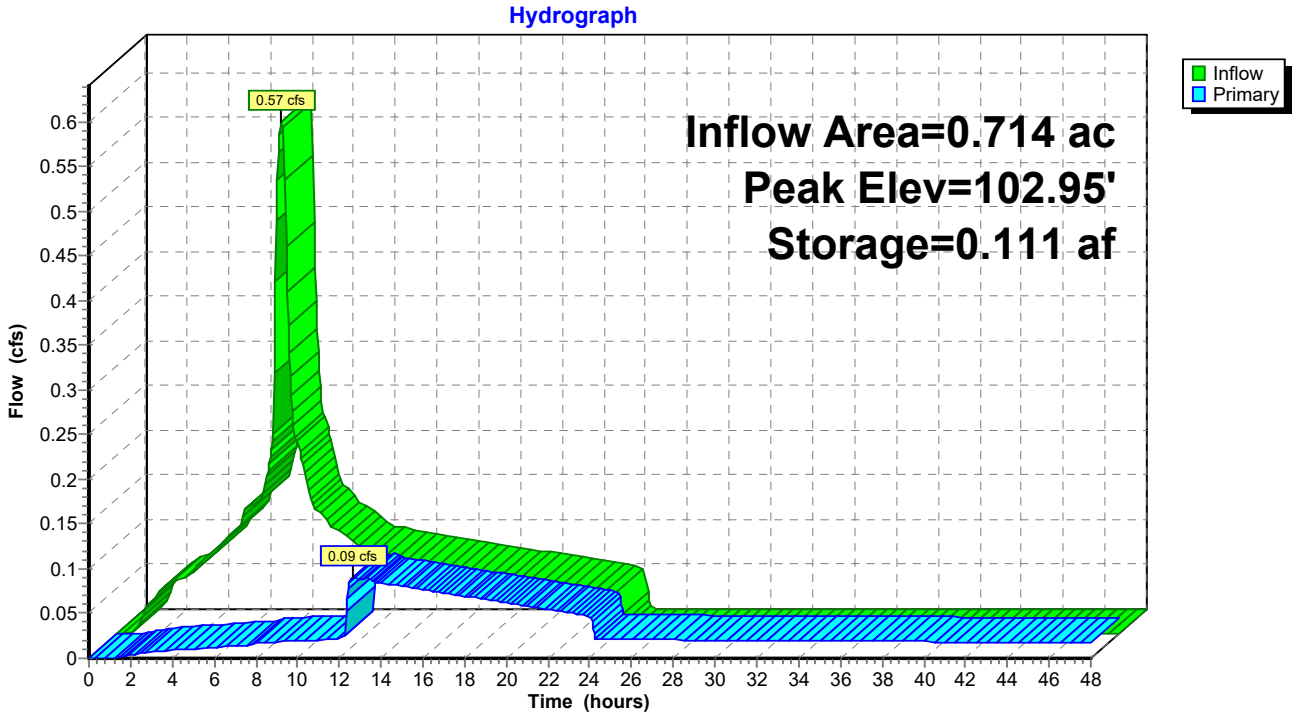
8,750.5 cf Field - 5,732.0 cf Chambers = 3,018.5 cf Stone x 40.0% Voids = 1,207.4 cf Stone Storage

Chamber Storage + Stone Storage = 4,977.3 cf = 0.114 af
Overall Storage Efficiency = 56.9%
Overall System Size = 129.00' x 22.00' x 3.08'

96 Chambers
324.1 cy Field
111.8 cy Stone



Pond 6P: Det Conc Pipe



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment2S: Total Site (PostDev) Runoff Area=31,100 sf 98.99% Impervious Runoff Depth=3.64"
Tc=5.0 min CN=74/98 Runoff=0.65 cfs 0.217 af

Pond 6P: Det Conc Pipe Peak Elev=102.96' Storage=0.112 af Inflow=0.65 cfs 0.217 af
Outflow=0.13 cfs 0.144 af

Total Runoff Area = 0.714 ac Runoff Volume = 0.217 af Average Runoff Depth = 3.64"
1.01% Pervious = 0.007 ac 98.99% Impervious = 0.707 ac

Summary for Subcatchment 2S: Total Site (PostDev)

[49] Hint: Tc<2dt may require smaller dt

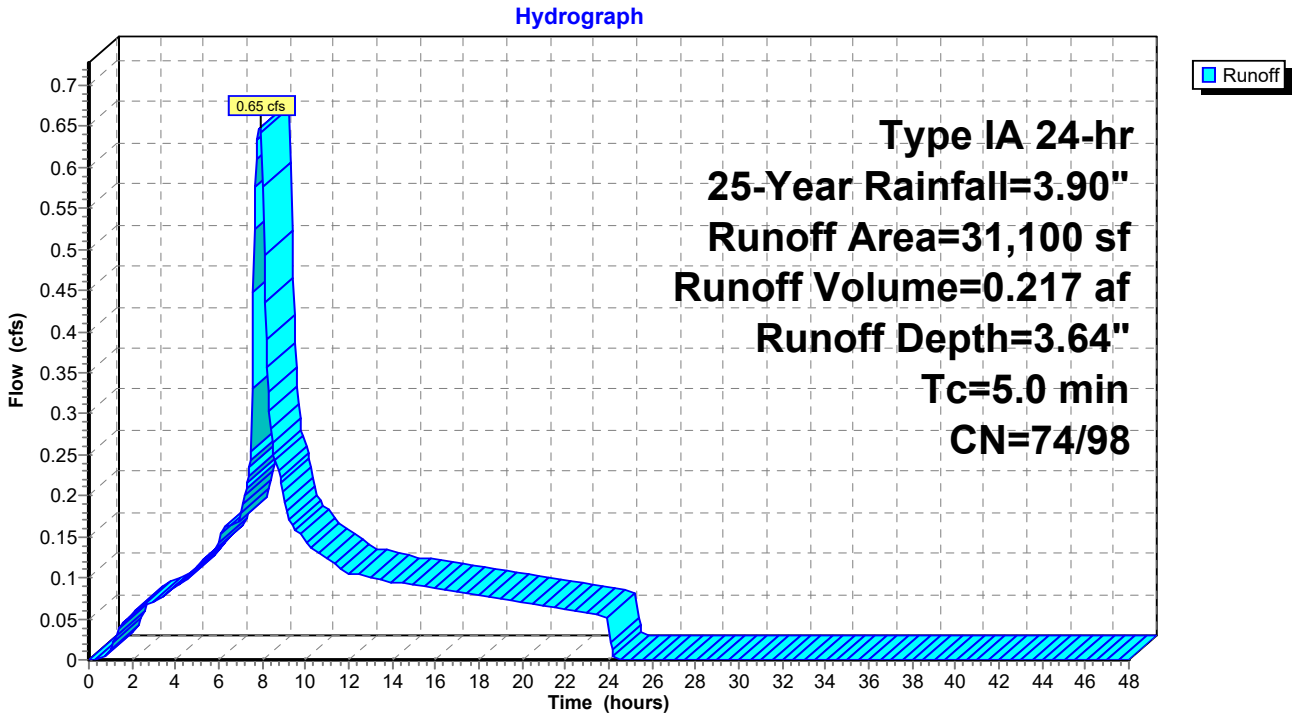
Runoff = 0.65 cfs @ 7.90 hrs, Volume= 0.217 af, Depth= 3.64"
Routed to Pond 6P : Det Conc Pipe

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25-Year Rainfall=3.90"

	Area (sf)	CN	Description
*	30,786	98	
*	314	74	
	31,100	98	Weighted Average
	314	74	1.01% Pervious Area
	30,786	98	98.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: Total Site (PostDev)



Summary for Pond 6P: Det Conc Pipe

Inflow Area = 0.714 ac, 98.99% Impervious, Inflow Depth = 3.64" for 25-Year event
Inflow = 0.65 cfs @ 7.90 hrs, Volume= 0.217 af
Outflow = 0.13 cfs @ 10.69 hrs, Volume= 0.144 af, Atten= 80%, Lag= 167.5 min
Primary = 0.13 cfs @ 10.69 hrs, Volume= 0.144 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 102.96' @ 10.69 hrs Surf.Area= 0.065 ac Storage= 0.112 af

Plug-Flow detention time= 789.5 min calculated for 0.144 af (66% of inflow)
Center-of-Mass det. time= 585.3 min (1,247.4 - 662.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	0.028 af	**22.00'W x 129.00'L x 3.08'H Field A** 0.201 af Overall - 0.132 af Embedded = 0.069 af x 40.0% Voids
#2A	100.00'	0.087 af	**RCP Round 30** x 96 Inside #1 Inside= 30.0"W x 30.0"H => 4.91 sf x 8.00'L = 39.3 cf Outside= 37.0"W x 37.0"H => 7.46 sf x 8.00'L = 59.7 cf 96 Chambers in 6 Rows
		0.114 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	100.00'	**0.700" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	102.90'	**8.000" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.13 cfs @ 10.69 hrs HW=102.96' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.02 cfs @ 8.25 fps)
└—**2=Orifice/Grate** (Weir Controls 0.11 cfs @ 0.82 fps)

Pond 6P: Det Conc Pipe - Chamber Wizard Field A

Chamber Model = RCP Round 30 (Round Reinforced Concrete Pipe)
Inside= 30.0"W x 30.0"H => 4.91 sf x 8.00'L = 39.3 cf
Outside= 37.0"W x 37.0"H => 7.46 sf x 8.00'L = 59.7 cf

37.0" Wide + 6.0" Spacing = 43.0" C-C Row Spacing

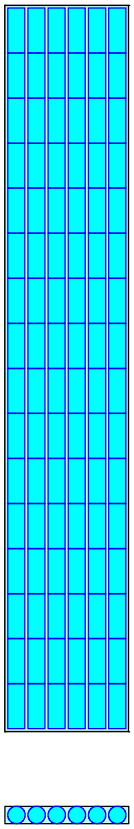
16 Chambers/Row x 8.00' Long = 128.00' Row Length +6.0" End Stone x 2 = 129.00' Base Length
6 Rows x 37.0" Wide + 6.0" Spacing x 5 + 6.0" Side Stone x 2 = 22.00' Base Width
37.0" Chamber Height = 3.08' Field Height

96 Chambers x 39.3 cf = 3,769.9 cf Chamber Storage
96 Chambers x 59.7 cf = 5,732.0 cf Displacement

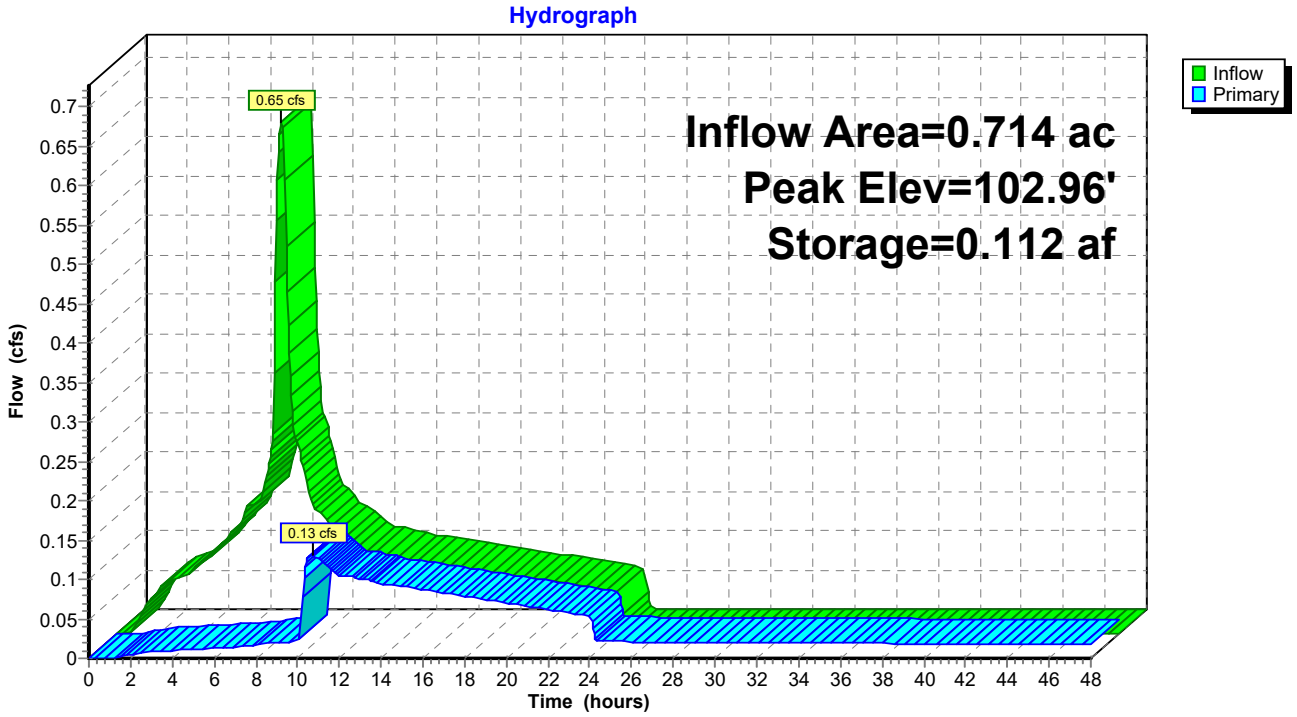
8,750.5 cf Field - 5,732.0 cf Chambers = 3,018.5 cf Stone x 40.0% Voids = 1,207.4 cf Stone Storage

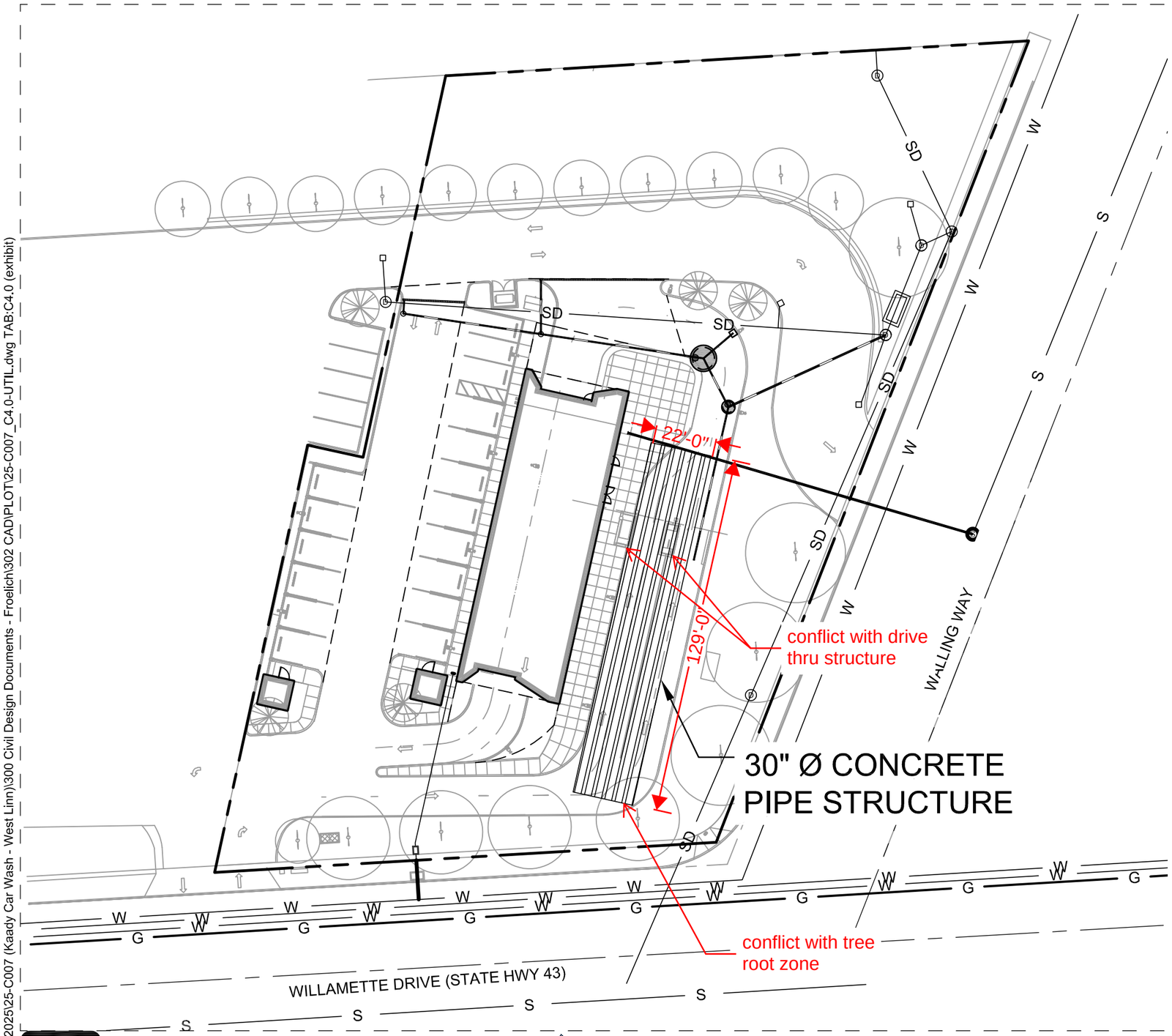
Chamber Storage + Stone Storage = 4,977.3 cf = 0.114 af
Overall Storage Efficiency = 56.9%
Overall System Size = 129.00' x 22.00' x 3.08'

96 Chambers
324.1 cy Field
111.8 cy Stone



Pond 6P: Det Conc Pipe





SCALE 1 INCH = 40 FEET

40 0 40 80

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Plotted: 7/31/25 at 4:08pm By: atomlinson

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APPENDIX G EXHIBIT
UTILITY PLAN

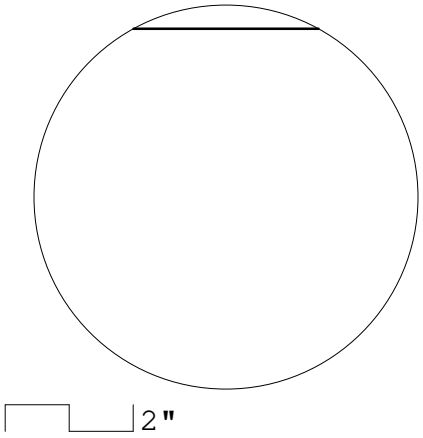
KAADY CAR WASH - WEST LINN
18850 WILLAMETTE DRIVE WEST LINN, OR

File: P:\2025\25-C007 (Kaady Car Wash - West Linn)\300 Civil Design Documents - Froelich\302 CAD\PLOT\25-C007_C4.0-UTIL.dwg TAB:C4.0 (exhibit)
11X17B

Appendix H: Stormwater Conveyance Calculations

Project 25-C007
Kaady Car Wash

GRAVITY PIPE FLOW (Chezy-Manning)
6-inch Pipe @ 1.5%

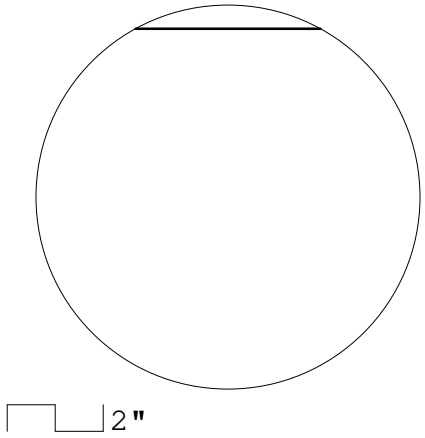


diameter = 6.0"
slope = 1.50%
material: ABS, PVC
Manning's n = 0.013
depth of flow = 93.82% of diameter (max)

wetted perimeter = 1.32'
area = 0.19 s.f.
hydraulic radius = 0.14'
velocity = 3.87 fps
flow = 0.74 cfs

Project 25-C007
Kaady Car Wash

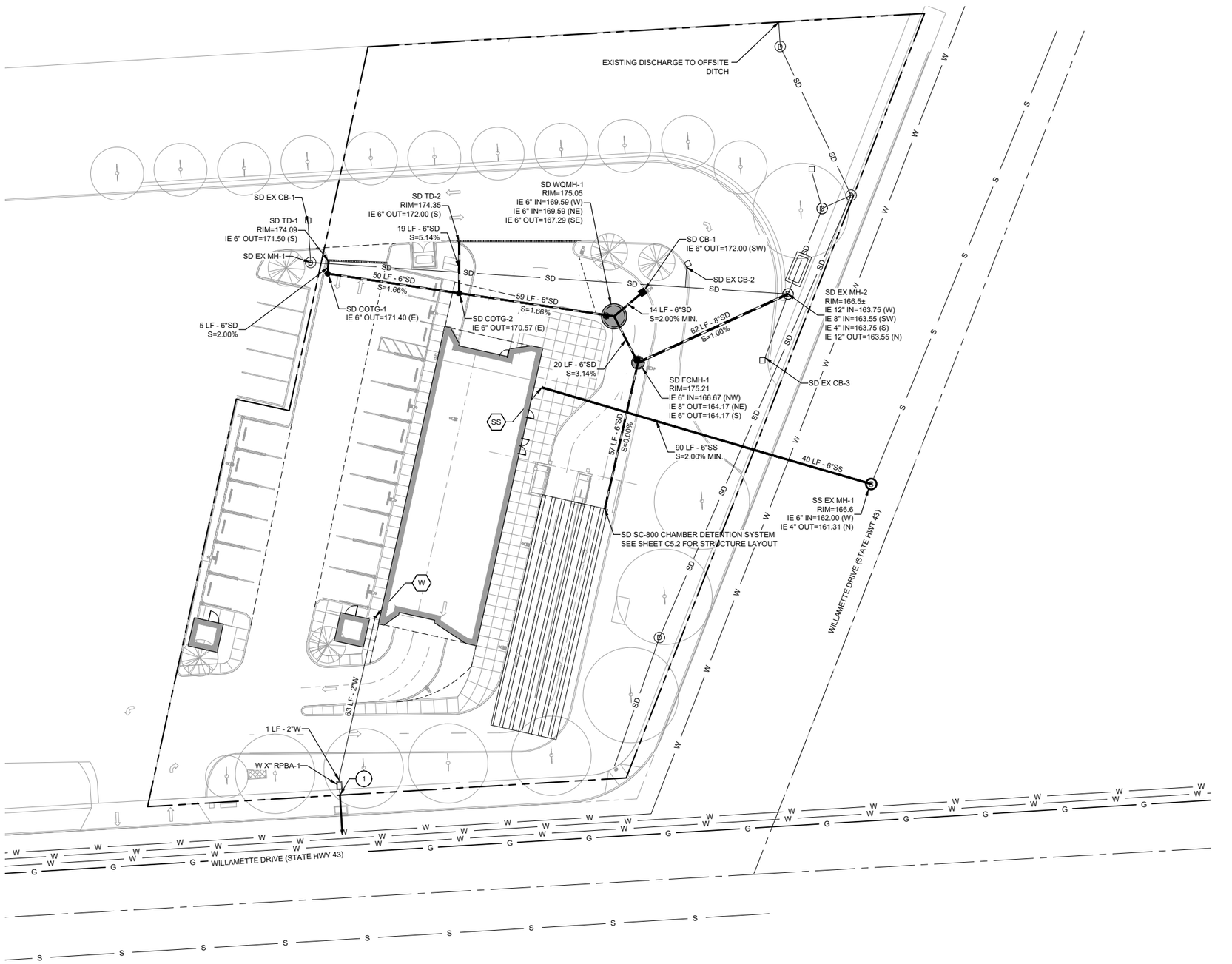
GRAVITY PIPE FLOW (Chezy-Manning)
8-inch Pipe @ 1.0%



diameter = 8.0"
slope = 1.00%
material: ABS, PVC
Manning's n = 0.013
depth of flow = 93.82% of diameter (max)

wetted perimeter = 1.76'
area = 0.34 s.f.
hydraulic radius = 0.19'
velocity = 3.83 fps
flow = 1.30 cfs

Appendix I: Utility Plan / Details



SHEET NOTES

1. PIPE BEDDING AND BACKFILL FOR ALL UTILITIES SHALL BE DONE PER DETAIL X/C5.X.
2. STRUCTURES LOCATIONS ARE BASED ON CENTER OF STRUCTURE.
3. INSTALL TRUST BLOCK ON FIRE AND WATER LINES PER DETAIL X & X/CX.X.

KEY NOTES

1 COORDINATE WATER SERVICE POINT OF CONNECTION TO EXISTING X" LATERAL WITH CITY OF WEST LINN.

2 FIELD VERIFY LOCATION AND IE OF EXISTING XX" XXXXX LATERAL PRIOR TO CONSTRUCTION.

3 IRRIGATION BACKFLOW ASSEMBLY VAULT, SEE LANDSCAPE PLANS.

UTILITY LABEL LEGEND

STRUCTURE LABEL

UTILITY TYPE (SD=STORM DRAINAGE, S=SANITARY SEWER, W=WATER, FP=FIRE PROTECTION)
STRUCTURE TYPE CALLOUT
ID NUMBER (WHERE APPLICABLE)

XX XX-XX
X+XX.X RT X.X'
RIM=
IE IN = XX.X
IE OUT = XX.X

LOCATION (WHERE APPLICABLE)
STRUCTURE INFO (WHERE APPLICABLE)

PIPE LABEL

UTILITY LENGTH
UTILITY SIZE
UTILITY TYPE

XXLF - XX" XX

S=X.XX%
SLOPE (WHERE APPLICABLE)

STRUCTURE TYPE

CALLOUT	DESCRIPTION	DETAIL REF.
BEND	BEND, USE FITTING IF APPLICABLE	X/XXX
BWV	BACKWATER VALVE	
CB	TRAPPED CATCH BASIN	
CO	CLEANOUT TO GRADE	
CONN	CONNECTION	
DW	DRYWELL	
FCMH	FLOW CONTROL MANHOLE	
FD	FOUNDATION DRAINAGE POINT OF CONN.	
FH	FIRE HYDRANT	
GV	GATE VALVE	
OF	OUTFALL	
OV	OVERFLOW INLET	
SDMH	48" DIA. STORM DRAIN MH	
TD	TRENCH DRAIN	
TEE	TEE CONNECTION	
WYE	WYE CONNECTION	
WQMH	WATER QUALITY MANHOLE	

SHEET LEGEND

SS CONNECT TO WASTE LINE. SEE PLUMBING PLANS FOR CONTINUATION. SIZE AS NOTED.

RD CONNECT TO STORM DRAIN/ROOF DRAIN. SEE PLUMBING PLANS FOR CONTINUATION. SIZE AND IE AS NOTED.

W CONNECT TO COLD WATER SYSTEM. SEE PLUMBING PLANS FOR CONTINUATION. SIZE AS NOTED.

U UTILITY CROSSING. PROVIDE 12" MIN. CLEARANCE, U.N.O.

SCALE 1 INCH = 20 FEET
20 0 20 40

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KAADY CAR WASH
WEST LINN, OREGON

Revisions

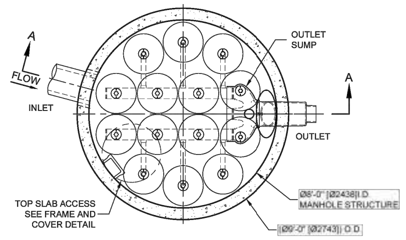
CONSTRUCTION SET

UTILITY PLAN

Project # 22005

C4.0

Date: 7.9.2025



PLAN VIEW
STANDARD OUTLET RISER
FLOWKIT: 43A

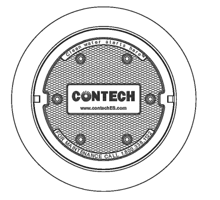
STORMFILTER DESIGN NOTES

STORMFILTER TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. THE STANDARD MANHOLE STYLE IS SHOWN WITH THE MAXIMUM NUMBER OF CARTRIDGES (14). VOLUME SYSTEM IS ALSO AVAILABLE WITH MAXIMUM 14 CARTRIDGES. Ø8'-0" [2438 mm] MANHOLE STORMFILTER PEAK HYDRAULIC CAPACITY IS 1.8 CFS [51 L/s] . IF THE SITE CONDITIONS EXCEED 1.8 CFS [51 L/s] AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CARTRIDGE SELECTION

CARTRIDGE HEIGHT	27" [686 mm]			18" [458 mm]			LOW DROP		
RECOMMENDED HYDRAULIC DROP (H)	3.05' [930 mm]			2.3' [700 mm]			1.8' [550 mm]		
SPECIFIC FLOW RATE (gpm/sf) [L/s/m²]	2 [1.30]	1.67* [1.08]	1 [0.65]	2 [1.30]	1.67* [1.08]	1 [0.65]	2 [1.30]	1.67* [1.08]	1 [0.65]
CARTRIDGE FLOW RATE (gpm) [L/s]	22.5 [1.42]	18.79 [1.19]	11.25 [0.71]	15 [0.95]	12.53 [0.79]	7.5 [0.44]	10 [0.63]	8.35 [0.54]	5 [0.32]

* 1.67 gpm/sf [1.08 L/s/m²] SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB® (PSORB) MEDIA ONLY



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	*
WATER QUALITY FLOW RATE (cfs) [L/s]	*
PEAK FLOW RATE (cfs) [L/s]	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
CARTRIDGE HEIGHT (SEE TABLE ABOVE)	*
NUMBER OF CARTRIDGES REQUIRED	*
CARTRIDGE FLOW RATE	*
MEDIA TYPE (PERLITE, ZPG, PSORB)	*

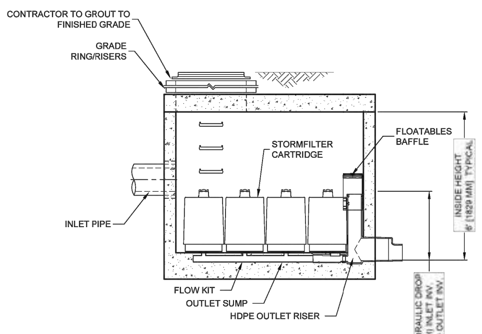
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE #1	*	*	*
INLET PIPE #2	*	*	*
OUTLET PIPE	*	*	*

RIM ELEVATION	*

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD



SECTION A-A

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR SITE SPECIFIC DRAWINGS WITH DETAILED VAULT DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
4. STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS-20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' [1524 mm] AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
6. FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES [178 mm]. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 38 SECONDS.
7. SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) [L/s] DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft)[m²].
8. STORMFILTER STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

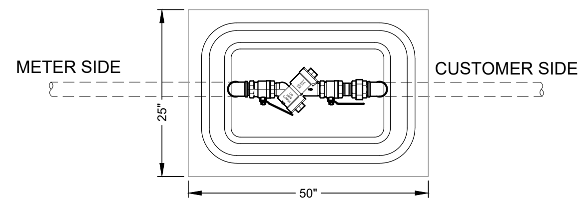
INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET PIPE(S).
E. CONTRACTOR TO PROVIDE AND INSTALL CONNECTOR TO THE OUTLET RISER STUB. STORMFILTER EQUIPPED WITH A DUAL DIAMETER HDPE OUTLET STUB AND SAND COLLAR. IF OUTLET PIPE IS LARGER THAN 8 INCHES [200 mm], CONTRACTOR TO REMOVE THE 8 INCH [200 mm] OUTLET STUB AT MOLDED-IN CUT LINE. COUPLING BY FERNCO OR EQUAL AND PROVIDED BY CONTRACTOR.
F. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

The Stormwater Management StormFilter®

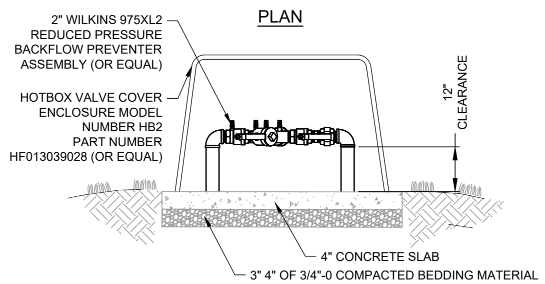
THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 5,322,629; 5,624,576; 5,707,527; 5,985,157; 6,027,639; 6,649,048; RELATED FOREIGN PATENTS, OR OTHER PATENTS PENDING.

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

SFMH96
STORMFILTER
STANDARD DETAIL



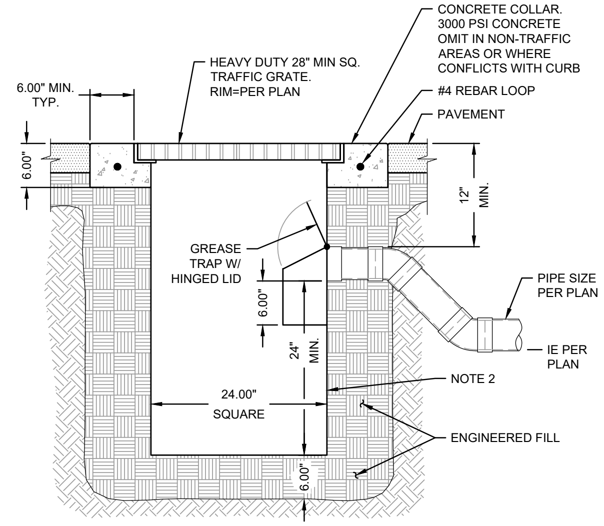
PLAN



ELEVATION

NOTE:
1. HOTBOX ENCLOSURE SHALL BE INSULATED AND HEATED. COORDINATE WITH ELECTRICAL PLANS FOR CONNECTION.
2. RPBA SHALL BE ACCESSIBLE BY VERTICALLY LIFTING OFF ENCLOSURE. CONTRACTOR TO VERIFY ACCESSIBILITY PRIOR TO CONSTRUCTION.

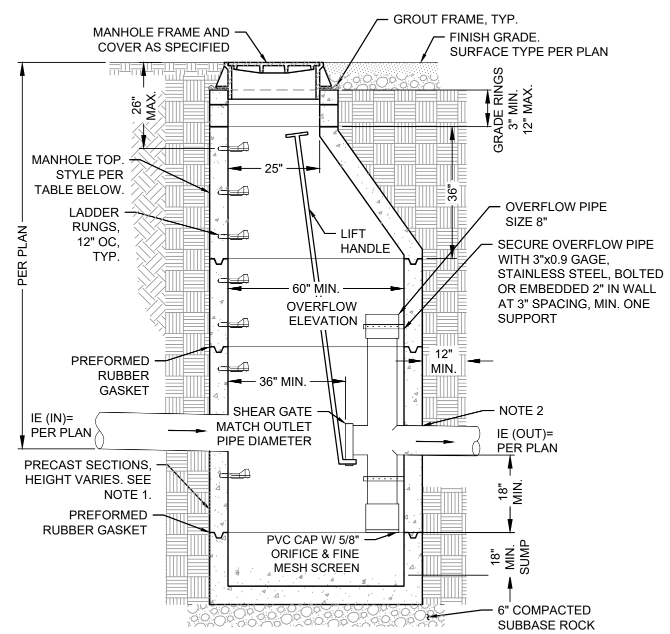
10 REDUCED PRESSURE BACKFLOW ASSEMBLY
SCALE: NTS



SECTION

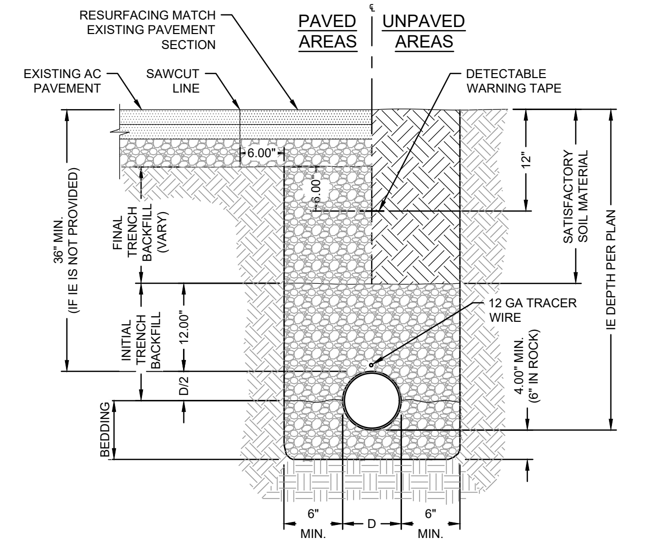
NOTES:
1. CONTRACTOR TO WIDEN EXCAVATION AS REQUIRED TO OBTAIN COMPACTION WITH CONTRACTORS COMPACTION EQUIPMENT.
2. 1/4" STEEL PLATE, BITUMINOUS COATED. AS MANUFACTURED BY GIBSON STEEL BASINS OR APPROVED EQUAL.

X TRAPPED CATCH BASIN
SCALE: NTS

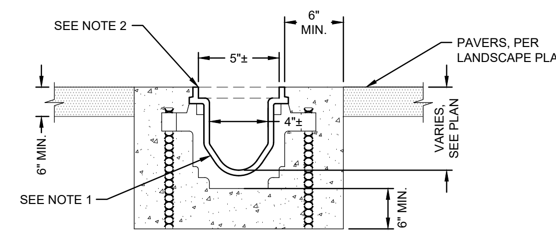


NOTES:
1. ALL PRECAST SECTIONS SHALL CONFORM TO REQUIREMENTS OF ASTM C-478.
2. ALL CONNECTING PIPES SHALL HAVE FLEXIBLE, GASKETED AND UNRESTRAINED JOINT WITHIN 18" OF MANHOLE VAULT. PIPE SIZES NOTED ON PLANS. PIPE CONNECTION TO MANHOLES SHALL HAVE KOR-N-SEAL BOOT OR APPROVED EQUAL.
3. ORIFICE AND OVERFLOW ELEVATIONS ARE RELATIVE TO IE (OUT)

6 FLOW CONTROL MANHOLE
SCALE: NTS



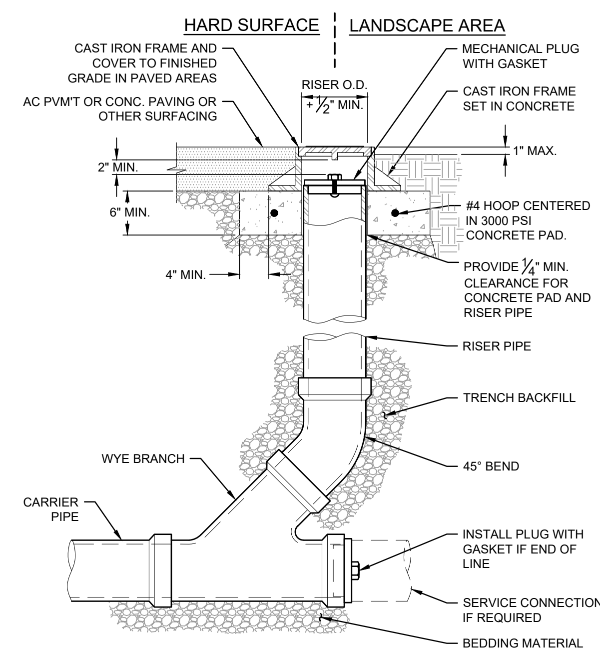
X TYPICAL PIPE BEDDING AND BACKFILL
SCALE: NTS



SECTION

NOTES:
1. TRENCH DRAIN SHALL BE PRE-SLOPED 4" WIDE ZURN OR ACO TRENCH DRAIN OR APPROVED EQUAL.
2. TRENCH DRAINS GRATE SHALL BE LOCKABLE HEAVY DUTY TRENCH GRATE - CLASS C.
3. TRENCH SYSTEM SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.

X TRENCH DRAIN - 4 INCH WIDE
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.

X STANDARD CLEANOUT (COTG)
SCALE: NTS

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KAADY CAR WASH
WEST LINN, OREGON

Revisions

CONSTRUCTION SET
DETAILS

Project # 22005

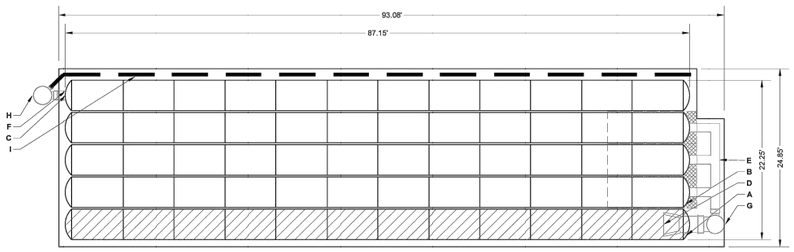
C5.1

Date: 7.9.2025

PROPOSED LAYOUT		PROPOSED ELEVATIONS	
60	STORMTECH SC-800 CHAMBERS	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED):	111.25
10	STORMTECH SC-800 END CAPS	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC):	105.00
8	STONE ABOVE (in)	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC):	104.67
6	STONE BELOW (in)	MINIMUM ALLOWABLE GRADE (TOP OF RIGID CONCRETE PAVEMENT):	104.50
40	STONE VOID	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT):	103.50
5272	INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED) (COVER STONE INCLUDED) (BASE STONE INCLUDED)	TOP OF STONE:	103.75
		TOP OF SC-800 CHAMBER:	103.25
		12" x 12" TOP MANIFOLD INVERT:	103.70
		24" ISOLATOR ROW PLUS INVERT:	103.69
2288	SYSTEM AREA (SF)	12" BOTTOM CONNECTION INVERT:	103.63
235.9	SYSTEM PERIMETER (ft)	BOTTOM OF SC-800 CHAMBER:	103.50
423	THERMOPLASTIC LINER (SY) (20% OVERAGE)	UNDERDRAIN INVERT:	100.50
		BOTTOM OF STONE:	100.00

*INVERT ABOVE BASE OF CHAMBER

PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT*	MAX FLOW
PREFABRICATED EZ END CAP	A	24" BOTTOM PREFABRICATED EZ END CAP, PART#: SC800ECEZ / TYP OF ALL 24" BOTTOM CONNECTIONS AND ISOLATOR PLUS ROWS	2.30"	
PRE-CORED END CAP	B	12" TOP PRE-CORED END CAP, PART#: SC800EPE12TPC / TYP OF ALL 12" TOP CONNECTIONS	14.40"	
PRE-CORED END CAP	C	12" BOTTOM PRE-CORED END CAP, PART#: SC800EPE12BPC / TYP OF ALL 12" BOTTOM CONNECTIONS	1.60"	
FLAMP	D	INSTALL FLAMP ON 24" ACCESS PIPE / PART#: SC80024RAMP		
MANIFOLD	E	12" x 12" TDP MANIFOLD, ADS N-12	14.40"	
PIPE CONNECTION	F	12" BOTTOM CONNECTION	1.60"	
NYLOPLAST (INLET W/ ISO PLUS ROW)	G	30" DIAMETER (24.00" SUMP MIN)		5.9 CFS IN
NYLOPLAST (OUTLET)	H	30" DIAMETER (DESIGN BY ENGINEER)		2.6 CFS OUT
UNDERDRAIN	I	6" ADS N-12 DUAL WALL PERFORATED HDPE UNDERDRAIN		



ISOLATOR ROW PLUS (SEE DETAIL)

PLACE MINIMUM 12.50' OF ADSPLUS825 WOVEN GEOTEXTILE OVER BEDDING STONE AND UNDERNEATH CHAMBER FEET FOR SCOUR PROTECTION AT ALL CHAMBER INLET ROWS

THERMOPLASTIC LINER (SEE TECH NOTE #6.50 PROVIDED BY OTHERS / DESIGN BY OTHERS)

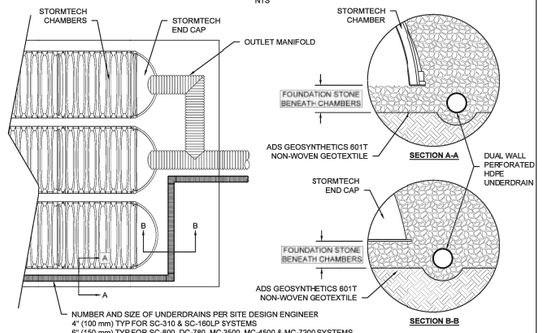
THERMOPLASTIC LINER (SEE TECH NOTE #6.50 PROVIDED BY OTHERS / DESIGN BY OTHERS)

NOTES

- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- **NOT FOR CONSTRUCTION**: THIS LAYOUT IS FOR DIMENSIONAL PURPOSES ONLY TO PROVE CONCEPT & THE REQUIRED STORAGE VOLUME CAN BE ACHIEVED ON SITE.

UNDERDRAIN DETAIL

NTS



4 UNDERDRAIN DETAIL

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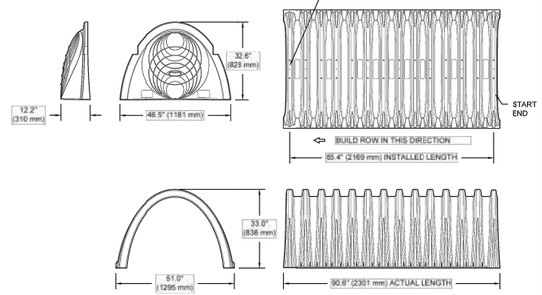
SC-800 TECHNICAL SPECIFICATION

NTS



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	51.0" X 33.0" X 85.4"	(1295 mm X 838 mm X 2169 mm)
CHAMBER STORAGE	50.6 CUBIC FEET	(1.43 m³)
MINIMUM INSTALLED STORAGE*	78.4 CUBIC FEET	(2.22 m³)
WEIGHT	81.8 lbs.	(37.1 kg)

NOMINAL END CAP SPECIFICATIONS

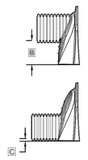
SIZE (W X H X INSTALLED LENGTH)	46.5" X 32.6" X 10.5"	(1181 mm X 828 mm X 267 mm)
END CAP STORAGE	3.4 CUBIC FEET	(0.09 m³)
MINIMUM INSTALLED STORAGE**	14.7 CUBIC FEET	(0.42 m³)
WEIGHT	15.7 lbs.	(7.1 kg)

* ASSUMES 6" (150 mm) STONE ABOVE, BELOW, AND BETWEEN CHAMBERS, 3" (75 mm) BETWEEN CHAMBERS
**ASSUMES 6" (150 mm) STONE ABOVE AND BELOW END CAPS, 3" (150 mm) BETWEEN ROWS, 12" (300 mm) BEYOND END CAPS

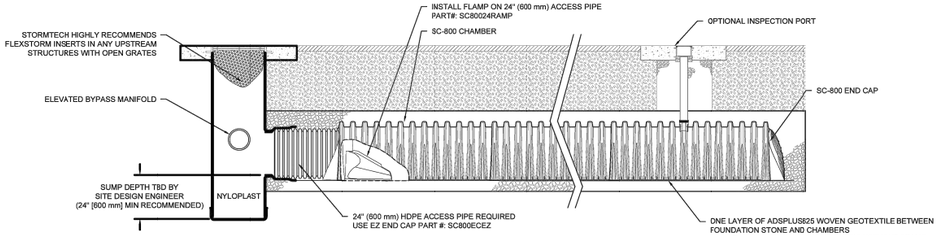
PRE-CORED HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "BPC"
PRE-CORED HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "TPC"

PART #	STUB	B	C
SC800EPE06TPC	6" (150 mm)	21.4" (544 mm)	---
SC800EPE06BPC		---	0.9" (23 mm)
SC800EPE08TPC	8" (200 mm)	19.2" (488 mm)	---
SC800EPE08BPC		---	1.0" (25 mm)
SC800EPE10TPC	10" (250 mm)	17.0" (432 mm)	---
SC800EPE10BPC		---	1.2" (30 mm)
SC800EPE12TPC	12" (300 mm)	14.4" (366 mm)	---
SC800EPE12BPC		---	1.6" (41 mm)
SC800EPE15TPC	15" (375 mm)	11.3" (287 mm)	---
SC800EPE15BPC		---	1.7" (43 mm)
SC800EPE18TPC	18" (450 mm)	8.0" (203 mm)	---
SC800EPE18BPC		---	2.0" (51 mm)
SC800EPE24BPC	24" (600 mm)	---	2.3" (58 mm)
SC800EPE	NONE	SOLID END CAP	

NOTE: ALL DIMENSIONS ARE NOMINAL



2 SC-800 TECHNICAL SPECIFICATION



SC-800 ISOLATOR ROW PLUS DETAIL
NTS

3 SC-800 ISOLATOR ROW PLUS DETAIL

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INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

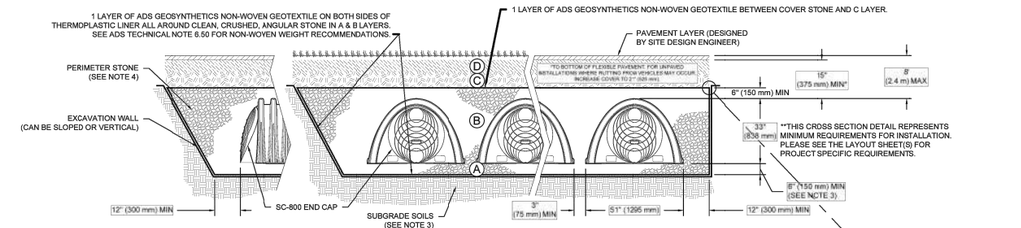
NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

ACCEPTABLE FILL MATERIALS: STORMTECH SC-800 CHAMBER SYSTEMS

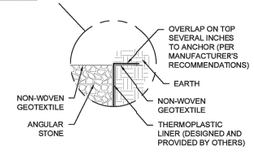
	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 15" (375 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[4] A-1, A-2-4, A-3 OR AASHTO M43[4] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[5]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[5]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.
5. WHERE RECYCLED CONCRETE AGGREGATE IS USED IN LAYERS 'A' OR 'B' THE MATERIAL SHOULD ALSO MEET THE ACCEPTABILITY CRITERIA OUTLINED IN TECHNICAL NOTE 6.20 "RECYCLED CONCRETE STRUCTURAL BACKFILL".



NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-800 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS. REFERENCE STORMTECH DESIGN MANUAL FOR BEARING CAPACITY GUIDANCE.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 750 LBS/FT/% AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.



THERMOPLASTIC LINER DETAIL

1 SC-800 CROSS SECTION DETAIL

DRAWN: CC | CHECKED: N/A | DATE: 07/25/2025 | PROJECT #: | REV: | NOT TO SCALE

25-C007 KAADY
WEST LINN, OR, USA

StormTech® Chamber System

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ADS

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SHEET 1 OF 1

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Revisions

CONSTRUCTION SET
DETAILS

Project # 22005

C5.2

Date: 7.9.2025

Appendix J: Operations and Maintenance Plan

to be provided in final stormwater report