August 17, 2023

AAI Engineering
Christopher Thornton, PE
4875 SW Griffith Dr
Suite 100
Beaverton, OR 97005

RE: Approval of Grading Permit GRAD 23-05 "Woodburn Apartments" for 119 N. Pacific Hwy (Tax Lot 051W17BC07500)

Dear Mr. Thornton:

Staff approves the Grading Permit, subject to the conditions of approval outlined in this letter.

Summary of Review:
This site is subject to the development standards of the Woodburn Development Ordinance (WDO). The applicant is requesting to perform grading work in preparation for construction of an apartment complex. Pursuant to WDO 4.01.02, the Director shall render all Type I land use decisions. The Director's decision is the final decision of the City on a Type I application and cannot be appealed by any party through the City land use appeals process.

Planning Conditions of Approval:

1. Conformance with Approved Plans: All site work shall be in substantial conformance with the approved grading plans.

2. DEQ: All development activity shall be in accordance with the approved Department of Environmental Quality (DEQ) 1200-C permit. The applicant shall provide to the City any modifications to the DEQ permit.

3. Other agencies: The applicant, not the City, is responsible for obtaining permits from Marion County, US Army Corps of Engineers (USACE), Oregon Department of State Lands (DSL), Oregon Department of Transportation (ODOT), and other agencies which might require approval or permit.

4. ROW: All work within City rights-of-way (ROWs) or easements within City jurisdiction shall require plan approval and permit issuance from the Public Works Department. All work within ODOT rights-of-way (ROWs) or easements within ODOT jurisdiction shall require plan approval and permit issuance from ODOT.

Public Works Conditions of Approval:

5. There is an issue with the private storm design that must be resolved prior to civil plan approval. This Grading Permit is approved prior to civil plan approval at owner's own risk.

6. The applicant shall comply with the submitted grading and erosion control plans, including measures to keep the ROW clean, to protect existing catch basins around the work area, and maintain dust control measures. All catch basins around the work area shall be clean of debris and soils at all times.

7. Construction access is limited to only one construction entrance onto State Hwy 99E.

8. The applicant shall continuously maintain adequate protection of all work from damage and protect the public and private property of others from injury or loss arising in connection with the work.

9. The applicant shall comply with City of Woodburn Planning Department requirements through Woodburn Development Ordinance (WDO) 5.01.04 Grading Permit.

10. Prior to starting work, contact ODOT for inspection of the erosion control in their rights-of-way.

11. All work in the right-of-way will need to wait for a construction permit from ODOT. Once that permit is acquired, the applicant shall leave the ROW in clean condition, free from litter and debris, at the end of each workday, or more frequently if directed by the ODOT Inspector.

12. Sidewalk and street closures are not allowed under this permit.

13. Prior to starting work, silt fencing shall be installed around the entire perimeter of the work area. Applicant shall comply with all requirements and conditions set on their 1200C permit.

Final decision approved by designee:

Heidi Hinshaw
Associate Planner

August 17, 2023

Enclosures:

- DEQ 1200-C Permit
- Approved Plans
- Stormwater Report & Calculations

cc: Chris Kerr, Community Development Director
Colin Cortes, AICP, CNU-A, Senior Planner
Dan Handel, AICP, Planner
Curtis Stultz, Public Works Director
Dago Garcia, PE, City Engineer
Casey Knecht, ODOT Region 2

file: GRAD 23-05

City of Woodburn
Community Development Department
270 Montgomery Street
Woodburn, OR 97071
Phone: 503-982-5246
Email: planning@ci.woodburn.or.us

OFFICE USE ONLY
File Number(s):
GRAD 23-05

971-23-000028-PLNG

RECEIVED
MAR 09 2023
COMMUNITY DEVELOPMENT DEPARTMENT

Application Packet for a Type I
Grading Permit

RECEIVED
MAR 09 2023
COMMUNITY DEVELOPMENT DEPARTMENT

Visit the City of Woodburn Planning webpage for the most current forms and applications.

General Information:

The purpose of this review is to ensure that grading is in compliance with the Woodburn Storm Management Plan, Woodburn Flood Plain Ordinance, Public Works Department Construction Standards and Specifications, and the State Building Code. Grading permits are subject to Woodburn Development Ordinance (WDO) section 5.01.03. The requirement for a grading permit applies to any of the following activities:

- Any fill, removal, or grading of land identified within the boundaries of the regulatory floodplain;
- Any fill, removal, or grading of land identified within the Riparian Corridor & Wetlands Overlay District (RCWOD);
- Any fill, removal, or grading of land that requires a permit from the Oregon Department of State Lands;
- Any fill, removal, or grading of land area that equals or exceeds one acre; or
- Any development activity required by the WDO to submit a grading plan or permit.

Fee: *Fees are required for an application to be accepted.*
See the planning fee schedule online

Required Submittals:

- ☐ Uniform Application – one completed copy. In the case of multiple applications, only one Uniform Application form need be submitted. Previously submitted - DR 22-05, EXCP 22-07, VAR 22-06
- ☐ One copy of each Oregon Department of Environmental Quality or US Army Corps of Engineers permit, if required and approved. N/A
- ☒ Three copies of a construction site management plan (ledger or 24"x36" plan sizes are acceptable), which shall include the following items:
  - ☒ Site location and vicinity map to scale showing the subject and adjacent properties.
  - ☒ Site development drawings to scale, which shall include:
    - ☒ Existing site conditions including property lines, easements, driveways, and structures;
    - ☒ Existing vegetation and wetlands, including locations and species of Significant Trees (see WDO 3.06.07);
    - ☐ Riparian Corridor & Wetland Overlay District (RCWOD) boundary (see WDO 2.05.05);
    - ☒ On-site elevations (existing and proposed grade contours) and surface drainage directions;
    - ☒ Areas where ground clearing, grading, cut or fill or other ground disturbing activities will occur;
    - ☒ Construction entrances and exits, staging areas, and refuse areas;
    - ☒ Existing and proposed stormwater management facilities (catch basins, area drains, etc.)
- ☒ Documentation of proposed Best Management Practices (BMPs). See the ODOT Erosion Control Manual for further information about BMPs.

Prior to deeming an application complete, the Director may request additional information.

Note to Applicant: Upon project completion, all erosion control measures must be removed by the Applicant.

Oregon
Tina Kotek, Governor

Department of Environmental Quality
Water Quality

July 21, 2023

Abdulbaset Shagrun
Woodburn Realestate, LLC
3000 Market St NE Ste 510
Salem, Oregon 97301-1807

Re: 1200-C National Pollutant Discharge Elimination System (NPDES) Registration
Permit/PLC No.: NGEN12C-ORR10H830
Project Name: 119 Pacific Highway
Project Location: 119 N Pacific Hwy, Woodburn,
Marion County

Dear Abdulbaset Shagrun:

The Oregon Department of Environmental Quality (DEQ) has reviewed your application and approved your registration for coverage under the NPDES Construction Stormwater Discharge Permit 1200-C (permit). As the registrant, you are legally responsible for compliance with all permit conditions. See this link https://www.oregon.gov/deq/wq/wqpermits/Pages/Stormwater-Construction.aspx for a copy of the permit, technical assistance, and all relevant permit forms.

Registrant Obligations

- Comply with all permit conditions. DEQ strongly recommends that you read the permit.
- Fully implement your Erosion and Sediment Control Plan (ESCP). You may need to modify site control measures as site conditions change.
- Ensure that all appropriate contractors hired by you to implement the permit on your behalf have a copy of the ESCP and the permit. Keep a list of all contractors working on your site along with their contact information.
- Notify DEQ of significant projects changes, including ESCP revisions, inspectors, or project ownership changes.
- Perform & document visual monitoring according to Schedule B of the permit by a certified erosion and sediment control person.
- Terminate coverage at the end of the project. You will be charged an annual registration fee until registration is terminated.

The permit does not authorize excavation or fill in state waterways, including wetlands, and does not replace the requirement for receiving authorization to do this type of work under Section 404 of the Clean Water Act. If the authorized activity involves earthmoving in a known or suspected wetland condition you must contact the Department of State Lands at 503-986-5200 if you are west of the Cascades, or 541-388-6112 if you are east of the Cascades, and request a wetland determination prior to earth moving.

The construction stormwater general permit, technical assistance manuals and other information is also available on DEQ Stormwater Program's website.

Sincerely,

DEQ Stormwater Permitting Program

STANDARD EROSION AND SEDIMENT CONTROL PLAN DRAWING NOTES:

1. ONCE KNOWN, INCLUDE A LIST OF ALL CONTRACTORS THAT WILL ENGAGE IN CONSTRUCTION ACTIVITIES ON SITE, AND THE AREAS OF THE SITE WHERE THE CONTRACTOR(S) WILL ENGAGE IN CONSTRUCTION ACTIVITIES. REVISE THE LIST AS APPROPRIATE UNTIL PERMIT COVERAGE IS TERMINATED (SECTION 4.4.C.i). IN ADDITION, INCLUDE A LIST OF ALL PERSONNEL (BY NAME AND POSITION) THAT ARE RESPONSIBLE FOR THE DESIGN, INSTALLATION AND MAINTENANCE OF STORMWATER CONTROL MEASURES (E.G. ESCP DEVELOPER, BMP INSTALLER (SEE SECTION 4.10), AS WELL AS THEIR INDIVIDUAL RESPONSIBILITIES. (SECTION 4.4.C.ii)
2. VISUAL MONITORING INSPECTION REPORTS MUST BE MADE IN ACCORDANCE WITH DEQ 1200–C PERMIT REQUIREMENTS. (SECTION 6.5)
3. INSPECTION LOGS MUST BE KEPT IN ACCORDANCE WITH DEQ'S 1200–C PERMIT REQUIREMENTS. (SECTION 6.5.Q)
4. RETAIN A COPY OF THE ESCP AND ALL REVISIONS ON SITE AND MAKE IT AVAILABLE ON REQUEST TO DEQ, AGENT, OR THE LOCAL MUNICIPALITY. (SECTION 4.7)
5. THE PERMIT REGISTRANT MUST IMPLEMENT THE ESCP. FAILURE TO IMPLEMENT ANY OF THE CONTROL MEASURES OR PRACTICES DESCRIBED IN THE ESCP IS A VIOLATION OF THE PERMIT. (SECTIONS 4 AND 4.11)
6. THE ESCP MUST BE ACCURATE AND REFLECT SITE CONDITIONS. (SECTION 4.8)
7. SUBMISSION OF ALL ESCP REVISIONS IS NOT REQUIRED. SUBMITTAL OF THE ESCP REVISIONS IS ONLY UNDER SPECIFIC CONDITIONS. SUBMIT ALL NECESSARY REVISION TO DEQ OR AGENT WITHIN 10 DAYS. (SECTION 4.9)
8. SEQUENCE CLEARING AND GRADING TO THE MAXIMUM EXTENT PRACTICAL TO PREVENT EXPOSED INACTIVE AREAS FROM BECOMING A SOURCE OF EROSION. (SECTION 2.2.2)
9. CREATE SMOOTH SURFACES BETWEEN SOIL SURFACE AND EROSION AND SEDIMENT CONTROLS TO PREVENT STORMWATER FROM BYPASSING CONTROLS AND PONDING. (SECTION 2.2.3)
10. IDENTIFY, MARK, AND PROTECT (BY CONSTRUCTION FENCING OR OTHER MEANS) CRITICAL RIPARIAN AREAS AND VEGETATION INCLUDING IMPORTANT TREES AND ASSOCIATED ROOTING ZONES, AND VEGETATION AREAS TO BE PRESERVED. IDENTIFY VEGETATIVE BUFFER ZONES BETWEEN THE SITE AND SENSITIVE AREAS (E.G., WETLANDS), AND OTHER AREAS TO BE PRESERVED, ESPECIALLY IN PERIMETER AREAS. (SECTION 2.2.1)
11. PRESERVE EXISTING VEGETATION WHEN PRACTICAL AND RE–VEGETATE OPEN AREAS. RE–VEGETATE OPEN AREAS WHEN PRACTICABLE BEFORE AND AFTER GRADING OR CONSTRUCTION. IDENTIFY THE TYPE OF VEGETATIVE SEED MIX USED. (SECTION 2.2.5)
12. MAINTAIN AND DELINEATE ANY EXISTING NATURAL BUFFER WITHIN THE 50–FEET OF WATERS OF THE STATE. (SECTION 2.2.4)
13. INSTALL PERIMETER SEDIMENT CONTROL, INCLUDING STORM DRAIN INLET PROTECTION AS WELL AS ALL SEDIMENT BASINS, TRAPS, AND BARRIERS PRIOR TO LAND DISTURBANCE. (SECTIONS 2.1.3)
14. CONTROL BOTH PEAK FLOW RATES AND TOTAL STORMWATER VOLUME, TO MINIMIZE EROSION AT OUTLETS AND DOWNSTREAM CHANNELS AND STREAM BANKS. (SECTIONS 2.1.1. AND 2.2.16)
15. CONTROL SEDIMENT AS NEEDED ALONG THE SITE PERIMETER AND AT ALL OPERATIONAL INTERNAL STORM DRAIN INLETS AT ALL TIMES DURING CONSTRUCTION, BOTH INTERNALLY AND AT THE SITE BOUNDARY. (SECTIONS 2.2.6 AND 2.2.13)
16. ESTABLISH CONCRETE TRUCK AND OTHER CONCRETE EQUIPMENT WASHOUT AREAS BEFORE BEGINNING CONCRETE WORK. (SECTION 2.2.14)
17. APPLY TEMPORARY AND/OR PERMANENT SOIL STABILIZATION MEASURES IMMEDIATELY ON ALL DISTURBED AREAS AS GRADING PROGRESSES. TEMPORARY OR PERMANENT STABILIZATIONS MEASURES ARE NOT REQUIRED FOR AREAS THAT ARE INTENDED TO BE LEFT UNVEGETATED, SUCH AS DIRT ACCESS ROADS OR UTILITY POLE PADS.(SECTIONS 2.2.20 AND 2.2.21)
18. ESTABLISH MATERIAL AND WASTE STORAGE AREAS, AND OTHER NON–STORMWATER CONTROLS. (SECTION 2.3.7)
19. KEEP WASTE CONTAINER LIDS CLOSED WHEN NOT IN USE AND CLOSE LIDS AT THE END OF THE BUSINESS DAY FOR THOSE CONTAINERS THAT ARE ACTIVELY USED THROUGHOUT THE DAY. FOR WASTE CONTAINERS THAT DO NOT HAVE LIDS, PROVIDE EITHER (1) COVER (E.G., A TARP, PLASTIC SHEETING, TEMPORARY ROOF) TO PREVENT EXPOSURE OF WASTES TO PRECIPITATION, OR (2) A SIMILARLY EFFECTIVE MEANS DESIGNED TO PREVENT THE DISCHARGE OF POLLUTANTS (E.G., SECONDARY CONTAINMENT). (SECTION 2.3.7)
20. PREVENT TRACKING OF SEDIMENT ONTO PUBLIC OR PRIVATE ROADS USING BMPS SUCH AS: CONSTRUCTION ENTRANCE, GRAVELED (OR PAVED) EXITS AND PARKING AREAS, GRAVEL ALL UNPAVED ROADS LOCATED ONSITE, OR USE AN EXIT TIRE WASH. THESE BMPS MUST BE IN PLACE PRIOR TO LAND– DISTURBING ACTIVITIES. (SECTION 2.2.7)
21. WHEN TRUCKING SATURATED SOILS FROM THE SITE, EITHER USE WATER–TIGHT TRUCKS OR DRAIN LOADS ON SITE. (SECTION 2.2.7.F)
22. CONTROL PROHIBITED DISCHARGES FROM LEAVING THE CONSTRUCTION SITE, I.E., CONCRETE WASH–OUT, WASTEWATER FROM CLEANOUT OF STUCCO, PAINT AND CURING COMPOUNDS. (SECTIONS 1.5 AND 2.3.9)
23. ENSURE THAT STEEP SLOPE AREAS WHERE CONSTRUCTION ACTIVITIES ARE NOT OCCURRING ARE NOT DISTURBED. (SECTION 2.2.10)
24. PREVENT SOIL COMPACTION IN AREAS WHERE POST–CONSTRUCTION INFILTRATION FACILITIES ARE TO BE INSTALLED. (SECTION 2.2.12)
25. USE BMPS TO PREVENT OR MINIMIZE STORMWATER EXPOSURE TO POLLUTANTS FROM SPILLS; VEHICLE AND EQUIPMENT FUELING, MAINTENANCE, AND STORAGE; OTHER CLEANING AND MAINTENANCE ACTIVITIES; AND WASTE HANDLING ACTIVITIES. THESE POLLUTANTS INCLUDE FUEL, HYDRAULIC FLUID, AND OTHER OILS FROM VEHICLES AND MACHINERY, AS WELL AS DEBRIS, FERTILIZER, PESTICIDES AND HERBICIDES, PAINTS, SOLVENTS, CURING COMPOUNDS AND ADHESIVES FROM CONSTRUCTION OPERATIONS. (SECTIONS 2.2.15 AND 2.3)
26. PROVIDE PLANS FOR SEDIMENTATION BASINS THAT HAVE BEEN DESIGNED PER SECTION 2.2.17 AND STAMPED BY AN OREGON PROFESSIONAL ENGINEER. (SEE SECTION 2.2.17.A)
27. IF ENGINEERED SOILS ARE USED ON SITE, A SEDIMENTATION BASIN/IMPOUNDMENT MUST BE INSTALLED. (SEE SECTIONS 2.2.17 AND 2.2.18)
28. PROVIDE A DEWATERING PLAN FOR ACCUMULATED WATER FROM PRECIPITATION AND UNCONTAMINATED GROUNDWATER SEEPAGE DUE TO SHALLOW EXCAVATION ACTIVITIES. (SEE SECTION 2.4)
29. IMPLEMENT THE FOLLOWING BMPS WHEN APPLICABLE: WRITTEN SPILL PREVENTION AND RESPONSE PROCEDURES, EMPLOYEE TRAINING ON SPILL PREVENTION AND PROPER DISPOSAL PROCEDURES, SPILL KITS IN ALL VEHICLES, REGULAR MAINTENANCE SCHEDULE FOR VEHICLES AND MACHINERY, MATERIAL DELIVERY AND STORAGE CONTROLS, TRAINING AND SIGNAGE, AND COVERED STORAGE AREAS FOR WASTE AND SUPPLIES. (SECTION 2.3)
30. USE WATER, SOIL–BINDING AGENT OR OTHER DUST CONTROL TECHNIQUE AS NEEDED TO AVOID WIND–BLOWN SOIL. (SECTION 2.2.9)
31. THE APPLICATION RATE OF FERTILIZERS USED TO REESTABLISH VEGETATION MUST FOLLOW MANUFACTURER'S RECOMMENDATIONS TO MINIMIZE NUTRIENT RELEASES TO SURFACE WATERS. EXERCISE CAUTION WHEN USING TIME–RELEASE FERTILIZERS WITHIN ANY WATERWAY RIPARIAN ZONE. (SECTION 2.3.5)
32. IF AN ACTIVE TREATMENT SYSTEM (FOR EXAMPLE, ELECTRO–COAGULATION, FLOCCULATION, FILTRATION, ETC.) FOR SEDIMENT OR OTHER POLLUTANT REMOVAL IS EMPLOYED, SUBMIT AN OPERATION AND MAINTENANCE PLAN (INCLUDING SYSTEM SCHEMATIC, LOCATION OF SYSTEM, LOCATION OF INLET, LOCATION OF DISCHARGE, DISCHARGE DISPERSION DEVICE DESIGN, AND A SAMPLING PLAN AND FREQUENCY) BEFORE OPERATING THE TREATMENT SYSTEM. OBTAIN ENVIRONMENTAL MANAGEMENT PLAN APPROVAL FROM DEQ BEFORE OPERATING THE TREATMENT SYSTEM. OPERATE AND MAINTAIN THE TREATMENT SYSTEM ACCORDING TO MANUFACTURER'S SPECIFICATIONS. (SECTION 1.2.9)
33. TEMPORARILY STABILIZE SOILS AT THE END OF THE SHIFT BEFORE HOLIDAYS AND WEEKENDS, IF NEEDED. THE REGISTRANT IS RESPONSIBLE FOR ENSURING THAT SOILS ARE STABLE DURING RAIN EVENTS AT ALL TIMES OF THE YEAR. (SECTION 2.2)
34. AS NEEDED BASED ON WEATHER CONDITIONS, AT THE END OF EACH WORKDAY SOIL STOCKPILES MUST BE STABILIZED OR COVERED, OR OTHER BMPS MUST BE IMPLEMENTED TO PREVENT DISCHARGES TO SURFACE WATERS OR CONVEYANCE SYSTEMS LEADING TO SURFACE WATERS. (SECTION 2.2.8)
35. SEDIMENT FENCE: REMOVE TRAPPED SEDIMENT BEFORE IT REACHES ONE THIRD OF THE ABOVE GROUND FENCE HEIGHT AND BEFORE FENCE REMOVAL. (SECTION 2.1.5.B)
36. OTHER SEDIMENT BARRIERS (SUCH AS BIOBAGS): REMOVE SEDIMENT BEFORE IT REACHES TWO INCHES DEPTH ABOVE GROUND HEIGHT AND BEFORE BMP REMOVAL. (SECTION 2.1.5.C)
37. CATCH BASINS: CLEAN BEFORE RETENTION CAPACITY HAS BEEN REDUCED BY FIFTY PERCENT. SEDIMENT BASINS AND SEDIMENT TRAPS: REMOVE TRAPPED SEDIMENTS BEFORE DESIGN CAPACITY HAS BEEN REDUCED BY FIFTY PERCENT AND AT COMPLETION OF PROJECT. (SECTION 2.1.5.D)
38. WITHIN 24 HOURS, SIGNIFICANT SEDIMENT THAT HAS LEFT THE CONSTRUCTION SITE, MUST BE REMEDIATED. INVESTIGATE THE CAUSE OF THE SEDIMENT RELEASE AND IMPLEMENT STEPS TO PREVENT A RECURRENCE OF THE DISCHARGE WITHIN THE SAME 24 HOURS. ANY IN–STREAM CLEAN–UP OF SEDIMENT SHALL BE PERFORMED ACCORDING TO THE OREGON DEPARTMENT OF STATE LANDS REQUIRED TIMEFRAME. (SECTION 2.2.19.A)
39. THE INTENTIONAL WASHING OF SEDIMENT INTO STORM SEWERS OR DRAINAGE WAYS MUST NOT OCCUR. VACUUMING OR DRY SWEEPING AND MATERIAL PICKUP MUST BE USED TO CLEANUP RELEASED SEDIMENTS. (SECTION 2.2.19)
40. DOCUMENT ANY PORTION(S) OF THE SITE WHERE LAND DISTURBING ACTIVITIES HAVE PERMANENTLY CEASED OR WILL BE TEMPORARILY INACTIVE FOR 14 OR MORE CALENDAR DAYS. (SECTION 6.5.F.)
41. PROVIDE TEMPORARY STABILIZATION FOR THAT PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES CEASE FOR 14 DAYS OR MORE WITH A COVERING OF BLOWN STRAW AND A TACKIFIER, LOOSE STRAW, OR AN ADEQUATE COVERING OF COMPOST MULCH UNTIL WORK RESUMES ON THAT PORTION OF THE SITE. (SECTION 2.2.20)
42. DO NOT REMOVE TEMPORARY SEDIMENT CONTROL PRACTICES UNTIL PERMANENT VEGETATION OR OTHER COVER OF EXPOSED AREAS IS ESTABLISHED. ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED, ALL TEMPORARY EROSION CONTROLS AND RETAINED MOVED AND DISPOSED OF PROPERLY, UNLESS NEEDED FOR LONG TERM USE FOLLOWING TERMINATION OF PERMIT COVERAGE. (SECTION 2.2.21)

LOCAL AGENCY–SPECIFIC EROSION CONTROL NOTES:

1. IF VEGETATIVE SEED MIXES ARE SPECIFIED, SEEDING MUST TAKE PLACE NOT LATER THAN SEPTEMBER 1; THE TYPE AND PERCENTAGE OF SEED IN THE MIX MUST BE IDENTIFIED ON THE PLANS.
2. ALL PUMPING OF SEDIMENT LADEN WATER SHALL BE DISCHARGED OVER AN UNDISTURBED, PREFERABLY VEGETATED AREA, AND THROUGH A SEDIMENT CONTROL BMP I.E. (FILTER BAG).
3. ALL EXPOSED SOILS MUST BE COVERED DURING THE WET WEATHER PERIOD, OCTOBER 01 – MAY 31.

RATIONALE STATEMENT

A COMPREHENSIVE LIST OF AVAILABLE BEST MANAGEMENT PRACTICES (BMP) OPTIONS BASED ON DEQ's GUIDANCE MANUAL HAS BEEN REVIEWED TO COMPLETE THIS EROSION AND SEDIMENT CONTROL PLAN. SOME OF THE ABOVE LISTED BMP's WERE NOT CHOSEN BECAUSE THEY WERE DETERMINED TO NOT EFFECTIVELY MANAGE EROSION PREVENTION AND SEDIMENT CONTROL FOR THIS PROJECT BASED ON SPECIFIC SITE CONDITIONS, INCLUDING SOIL CONDITIONS TOPOGRAPHIC CONSTRAINTS, ACCESSIBILITY TO THE SITE, AND OTHER RELATED CONDITIONS, AS THE PROJECT PROGRESSES AND THERE IS A NEED TO REVISE THE ESC PLAN, AN ACTION PLAN WILL BE SUBMITTED.

CFT
INITIAL

EROSION AND SEDIMENT CONTROL PLAN FOR
119 N PACIFIC HWY
1200-C PERMIT #XX-XXX-XX

119 N PACIFIC HWY
WOODBURN, OR 97071
LATITUDE = 45° 8' 11.13"
LONGITUDE = –122° 50' 42.65"

LEGAL DESCRIPTION:

TAX LOT 7500
MAP NW1/4 SEC. 17, T5S, R1W, W.M.

PROPERTY DESCRIPTION:

LOCATED IN THE NORTHWEST ONE–QUARTER OF SECTION 17, TOWNSHIP 5 SOUTH, RANGE 1 WEST, OF THE WILLAMETTE MERIDIAN, CITY OF WOODBURN, MARION COUNTY, OREGON

INSPECTION FREQUENCY:

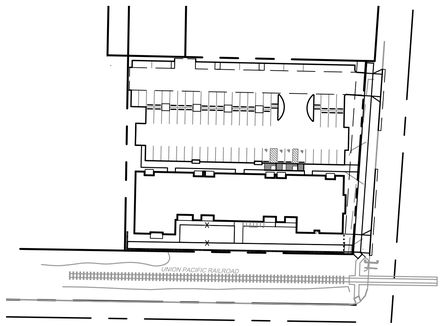
	SITE CONDITION	MINIMUM FREQUENCY
1.	ACTIVE PERIOD	ON INITIAL DATE THAT LAND DISTURBANCE ACTIVITIES COMMENCE. WITHIN 24 HOURS OF ANY STORM EVENT, INCLUDING RUNOFF FROM SNOW MELT, THAT RESULTS IN DISCHARGE FROM THE SITE. AT LEAST ONCE EVERY 14 DAYS, REGARDLESS OF WHETHER STORMWATER RUNOFF IS OCCURRING.
2.	INACTIVE PERIODS GREATER THAN FOURTEEN (14) CONSECUTIVE CALENDAR DAYS.	THE INSPECTOR MAY REDUCE THE FREQUENCY OF INSPECTIONS IN ANY AREA OF THE SITE WHERE THE STABILIZATION STEPS IN SECTION 2.2.20 HAVE BEEN COMPLETED. TWICE THE FIRST MONTH, NO LESS THAN 14 CALENDAR DAYS APART, AFTER BECOMING INACTIVE, AND THEN ONCE PER MONTH.
3.	PERIODS DURING WHICH THE SITE IS INACCESSIBLE DUE TO INCLEMENT WEATHER.	IF SAFE, ACCESSIBLE, AND PRACTICAL, INSPECTIONS MUST OCCUR DAILY AT A RELEVANT DISCHARGE POINT OR DOWNSTREAM LOCATION OF THE RECEIVING WATERBODY.
4.	PERIODS DURING WHICH CONSTRUCTION ACTIVITIES ARE SUSPENDED AND RUNOFF IS UNLIKELY DUE TO FROZEN CONDITIONS.	VISUAL MONITORING INSPECTIONS MAY BE TEMPORARILY SUSPENDED. IMMEDIATELY RESUME MONITORING UPON THAWING, OR WHEN WEATHER CONDITIONS MAKE DISCHARGES LIKELY.
5.	PERIODS DURING WHICH CONSTRUCTION ACTIVITIES ARE CONDUCTED AND RUNOFF IS UNLIKELY DURING FROZEN CONDITIONS.	VISUAL MONITORING INSPECTIONS MAY BE REDUCED TO ONCE A MONTH. IMMEDIATELY UPON THAWING, OR WHEN WEATHER CONDITIONS MAKE DISCHARGES LIKELY.

* HOLD A PRE–CONSTRUCTION MEETING OF PROJECT CONSTRUCTION PERSONNEL THAT INCLUDES THE INSPECTOR TO DISCUSS EROSION AND SEDIMENT CONTROL MEASURES AND CONSTRUCTION LIMITS.
* ALL INSPECTIONS MUST BE MADE IN ACCORDANCE WITH DEQ 1200–C PERMIT REQUIREMENTS.
* INSPECTION LOGS MUST BE KEPT IN ACCORDANCE WITH DEQ'S 1200–C PERMIT REQUIREMENTS.
* RETAIN A COPY OF THE ESCP AND ALL REVISIONS ON SITE AND MAKE IT AVAILABLE ON REQUEST TO DEQ, AGENT, OR THE LOCAL MUNICIPALITY. DURING INACTIVE PERIODS OF GREATER THAN SEVEN (7) CONSECUTIVE CALENDAR DAYS, RETAIN THE ESCP AT THE CONSTRUCTION SITE OR AT ANOTHER LOCATION.

BMPS WITH ESCP IMPLEMENTATION SCHEDULE

(CONSTRUCTION BEGINS 2023) YEAR:	1					2
PHASE/BMP	CLEARING	MASS GRADING	UTILITY CONSTRUCTION	VERTICAL CONSTRUCITON	WET WEATHER	FINAL STABILIZATION
BIOBAGS	X	X	X	X	X	
CHECK DAMS						
COMPOST BERM						
COMPOST BLANKETS						
COMPOST SOCKS						
CONCRETE TRUCK WASHOUT	X	X	X	X	X	
CONSTRUCTION ENTRANCE	X**	X	X	X	X	
DEWATERING						
DRAINAGE SWALES						
EARTH DIKES (STABILIZED)						
ENERGY DISSIPATERS						
HYDROSEEDING						
INLET PROTECTION	X**	X	X	X	X	
MULCH (STRAW)		X	X	X	X	
MYCORRHIZAE/BIOFERTILIZERS						
NATURAL BUFFER ZONE	X	X	X	X		
ORANGE FENCING						
OUTLET PROTECTION	X	X	X	X	X	
PERMANENT SEEDING AND PLANTING					X	X
PIPE SLOPE DRAINS						
PLASTIC SHEETING	X	X	X		X	
PRESERVE EXISTING VEGETATION	X	X	X	X	X	X
SEDIMENT FENCING	X**	X	X	X	X	
SEDIMENT BARRIER						
SEDIMENT TRAP						
SODDING						
SOIL TACKIFIERS						
STORM DRAIN INLET PROTECTION	X	X	X	X	X	
STRAW WATTLES						
TEMPORARY DIVERSION DIKES						
TEMPORARY OR PERMANENT SEDIMENTATION BASINS						
TEMPORARY SEEDING OR PLANTING						
TREATMENT SYSTEM						
UNPAVED ROADS GRAVELED OR OTHER BMP ON THE ROAD						
VEGETATIVE BUFFER STRIPS						

*SIGNIFIES ADDITIONAL BMP'S REQUIRED FOR WORK WITHIN 50' OF WATER OF THE STATE.
**SIGNIFIES BMP THAT WILL BE INSTALLED PRIOR TO ANY GROUND DISTURBING ACTIVITY.



NORTH
SITE MAP
SCALE: N.T.S.

NORTH
VICINITY MAP
SCALE: N.T.S.

SHEET INDEX

EROSION AND SEDIMENT CONTROL PLANS

AAI ENGINEERING — CIVIL ENGINEER
CONTACT: CHRISTOPHER THORNTON, PE
4875 SW GRIFFITH DRIVE, SUITE 100
BEAVERTON, OREGON 97005
PH: 503–352–7686
FAX: 503–620–5539
EMAIL: CHRISTOPHERT@AAIENG.COM

STUDIO 3 — ARCHITECT
CONTACT: JIM TOPOREK
275 COURT STREET NE
SALEM, OR 97301
PHONE: 503–390–6500
EMAIL: JIM@STUDIO3ARCHITECTURE.COM

LAZER SITE SURVEYING — SURVEYOR
2003 25TH STREET SE SALEM, OR 97302
PHONE: 503–581–6362

PERMITTEE'S SITE INSPECTOR: TY HARRIS
COMPANY/AGENCY: AAI ENGINEERING
PHONE: 503–620–3030
FAX: 503–620–5539
E–MAIL: TY@AAIENG.COM
DESCRIPTION OF EXPERIENCE:
CESCL ID#CWT21–1348 EXPIRES: 09/17/2024

SITE DATA

EXISTING (PUBLIC):
TOTAL PERVIOUS AREA: 2,014SF 0.05AC
TOTAL IMPERVIOUS AREA: 855SF 0.02AC

EXISTING (PRIVATE):
TOTAL PERVIOUS AREA: 28,969SF 0.67AC
TOTAL IMPERVIOUS AREA: 33,542SF 0.77AC

POST–DEVELOPMENT (PUBLIC):
TOTAL PERVIOUS AREA: 1,757SF 0.04AC
TOTAL IMPERVIOUS AREA: 3,374SF 0.08AC

POST–DEVELOPMENT (PRIVATE):
TOTAL PERVIOUS AREA: 11,660SF 0.27AC
TOTAL IMPERVIOUS AREA: 48,615SF 1.12AC

NARRATIVE DESCRIPTIONS

EXISTING SITE CONDITIONS

OPEN FIELD WITH GRAVEL PAD

DEVELOPED CONDITIONS

MULTI–FAMILY RESIDENTIAL BUILDING WITH ASSOCIATED PARKING, UTILITIES, AND PEDESTRIAN PATHWAYS

NATURE OF CONSTRUCTION ACTIVITY AND ESTIMATED TIME TABLE

PHASE I – DEMO AND CONSTRUCTION
* CLEARING AND GRADING (06/23 TO 08/23)
* UTILITY INSTALLATION (08/23 TO 10/23)
* OFFSITE INSTALLATION (08/23 TO 09/23)
* VERTICAL CONSTRUCTION (10/23 TO 08/24)
* FINAL STABILIZATION (08/24 TO 10/24)

ONSITE DISTURBED AREA = ~1.38 ACRES
OFFSITE DISTURBED AREA = ~0.12 ACRES
TOTAL DISTURBED AREA = ~1.50 ACRES

SITE SOIL CLASSIFICATIONS:

SOIL TYPE – AMITY SILT LOAM
0.5 TO 7 PERCENT SLOPES: 100% PERCENTAGE OF SITE

RECEIVING WATER BODIES:
MILL CREEK

NEAREST RAIN GAUGE:
CLACKAMAS RIVER AT ESTACADA #14210000

THE PERMITTEE IS REQUIRED TO MEET ALL THE CONDITIONS OF THE 1200–C PERMIT. THIS ESCP AND GENERAL CONDITIONS HAVE BEEN DEVELOPED TO FACILITATE COMPLIANCE WITH THE 1200–C PERMIT REQUIREMENTS. IN CASES OF DISCREPANCIES OR OMISSIONS, THE 1200–C PERMIT REQUIREMENTS SUPERCEDE REQUIREMENTS OF THIS PLAN.

BUSINESS DAYS/HOURS:

MONDAY	7:00–5:00
TUESDAY	7:00–5:00
WEDNESDAY	7:00–5:00
THURSDAY	7:00–5:00
FRIDAY	7:00–5:00
SATURDAY	–NO WORK–
SUNDAY	–NO WORK–

LEGEND

PROPERTY LINE
CENTERLINE
BUILDING LINE
6" CONCRETE CURB
EDGE OF ASPHALT
FIRE HYDRANT
D — DRAINAGE VAULT
TCB — TRAFIC CONTROL BOX
WATER/GAS VALVE
S — SANITARY SEWER MH
CO — SANITARY SEWER C.O.
D — STORM SEWER MH
CATCH BASIN
LIGHT STANDARD
LIGHT STANDARD WITH 2' CONCRETE BASE
SD — UNDERGROUND STORM DRAIN LINE
SS — UNDERGROUND SANITARY SEWER LINE
L/S — LANDSCAPED AREA
FOUND AS NOTED

ATTENTION EXCAVATORS:

OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952–001–0010 THROUGH OAR 952–001–0090. YOU MAY OBTAIN COPIES OF THESE RULES FROM THE CENTER BY CALLING 503–232–1987. IF YOU HAVE ANY QUESTIONS ABOUT THE RULES, YOU MAY CONTACT THE CENTER. YOU MUST NOTIFY THE CENTER AT LEAST TWO BUSINESS DAYS, BEFORE COMMENCING AN EXCAVATION. CALL 503–246–6699.

02/24/2023 – CONSTRUCTION DOCUMENTS

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 10, 2012
CHRISTOPHER F. THORNTON
EXPIRES: 6/30/2024

AAI engineering associates, inc.
ENGINEERING
4875 SW Griffith Drive | Suite 300 | Beaverton, OR | 97005
503.620.3030 tel | 503.620.5539 fax | www.aaieng.com

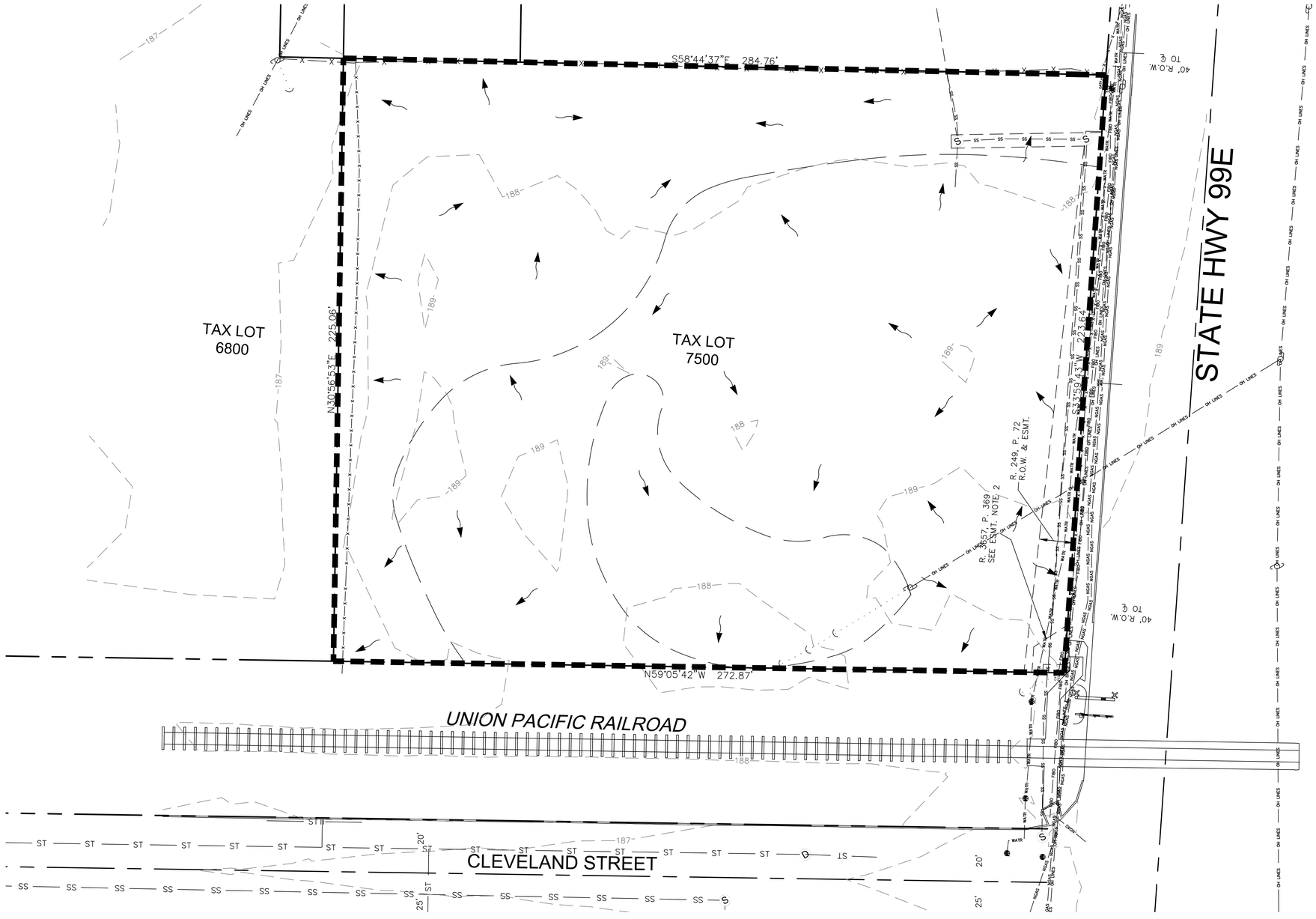
119 N PACIFIC HWY
WOODBURN, OR

SHEET TITLE
ESCP COVER SHEET

DATE: 12/13/21
DRAWN: JS
CHECKED: CFT
REVISIONS:

SHEET NUMBER
EC1.0

JOB NUMBER: A21194.10



CONSTRUCTION SEQUENCING & STORM FACILITY NOTES

1. DEMOLITION WILL REMOVE IMPERVIOUS SURFACES. UNTIL NEW IMPERVIOUS SURFACES ARE INSTALLED, STORMWATER WILL BE INFILTRATED IN PLACE. CONTRACTOR TO INSTALL EROSION CONTROL MEASURES AS NEEDED TO PREVENT SEDIMENT LADEN RUNOFF FROM LEAVING THE SITE.

CONTRACTOR SHALL ENSURE THAT POSITIVE DRAINAGE IS MAINTAINED ACROSS EXPOSED AREAS AND NO LOW POINTS ARE CREATED ON-SITE AHEAD OF HOLIDAYS/WEEKENDS OR WHEN THERE IS ANY CHANCE OF RAIN.

EROSION CONTROL PLAN NOTES

1. APPROVAL OF THIS EROSION/SEDIMENTATION CONTROL (ESC) PLAN DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G., SIZE AND LOCATION OF ROADS, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.).
2. THE IMPLEMENTATION OF THESE ESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED AND PERMANENT VEGETATION/LANDSCAPING IS ESTABLISHED.
3. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY FLAGGED IN THE FIELD PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE FLAGGED CLEARING LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE CONTRACTOR FOR THE DURATION OF CONSTRUCTION.
4. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT ENTER THE DRAINAGE SYSTEM, ROADWAYS, OR VIOLATE APPLICABLE WATER STANDARDS.
5. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT LEAVE THE SITE.
6. THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING.
7. THE ESC FACILITIES ON INACTIVE SITES MAY REDUCE FREQUENCY OF INSPECTIONS WHERE STABILIZATION STEPS IN SECTION 2.2.20 HAVE BEEN COMPLETED. AFTER BECOMING INACTIVE, THE ESC FACILITIES SHALL BE INSPECTED AND MAINTAINED TWICE THE FIRST MONTH, NO LESS THAN 14 CALENDAR DAYS APART, THEN A MINIMUM OF ONCE A MONTH OR WITHIN THE 24 HOURS FOLLOWING A STORM EVENT.
8. AT NO TIME SHALL MORE THAN ONE FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A TRAPPED CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT LADEN WATER INTO THE DOWNSTREAM SYSTEM.
9. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

PRE-CONSTRUCTION, CLEARING AND DEMOLITION NOTES

1. ALL BASE ESC MEASURES (INLET PROTECTION, PERIMETER SEDIMENT CONTROL, GRAVEL CONSTRUCTION ENTRANCES, ETC.) MUST BE IN PLACE, FUNCTIONAL, AND APPROVED IN AN INITIAL INSPECTION, PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
2. SEDIMENT BARRIERS APPROVED FOR USE INCLUDE SEDIMENT FENCE, BERMS CONSTRUCTED OUT OF MULCH, CHIPPINGS, OR OTHER SUITABLE MATERIAL, STRAW WATTLES, OR OTHER APPROVED MATERIALS.
3. SENSITIVE RESOURCES INCLUDING, BUT NOT LIMITED TO, TREES, WETLANDS, AND RIPARIAN PROTECTION AREAS SHALL BE CLEARLY DELINEATED WITH ORANGE CONSTRUCTION FENCING OR CHAIN LINK FENCING IN A MANNER THAT IS CLEARLY VISIBLE TO ANYONE IN THE AREA. NO ACTIVITIES ARE PERMITTED TO OCCUR BEYOND THE CONSTRUCTION BARRIER.
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5. RUN-ON AND RUN-OFF CONTROLS SHALL BE IN PLACE AND FUNCTIONING PRIOR TO BEGINNING SUBSTANTIAL CONSTRUCTION ACTIVITIES. RUN-ON AND RUN-OFF CONTROL MEASURES INCLUDE: SLOPE DRAINS (WITH OUTLET PROTECTION), CHECK DAMS, SURFACE ROUGHENING, AND BANK STABILIZATION.

LEGEND

EXISTING CONTOUR MINOR — 102

EXISTING CONTOUR MAJOR — 100

LIMIT OF DISTURBANCE

FLOW ARROW

NORTH

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet

02/24/2023 – CONSTRUCTION DOCUMENTS

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 10, 2012
CHRISTOPHER F. THORNTON
EXPIRES: 6/30/2024

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119 N PACIFIC HWY

WOODBURN, OR

SHEET TITLE

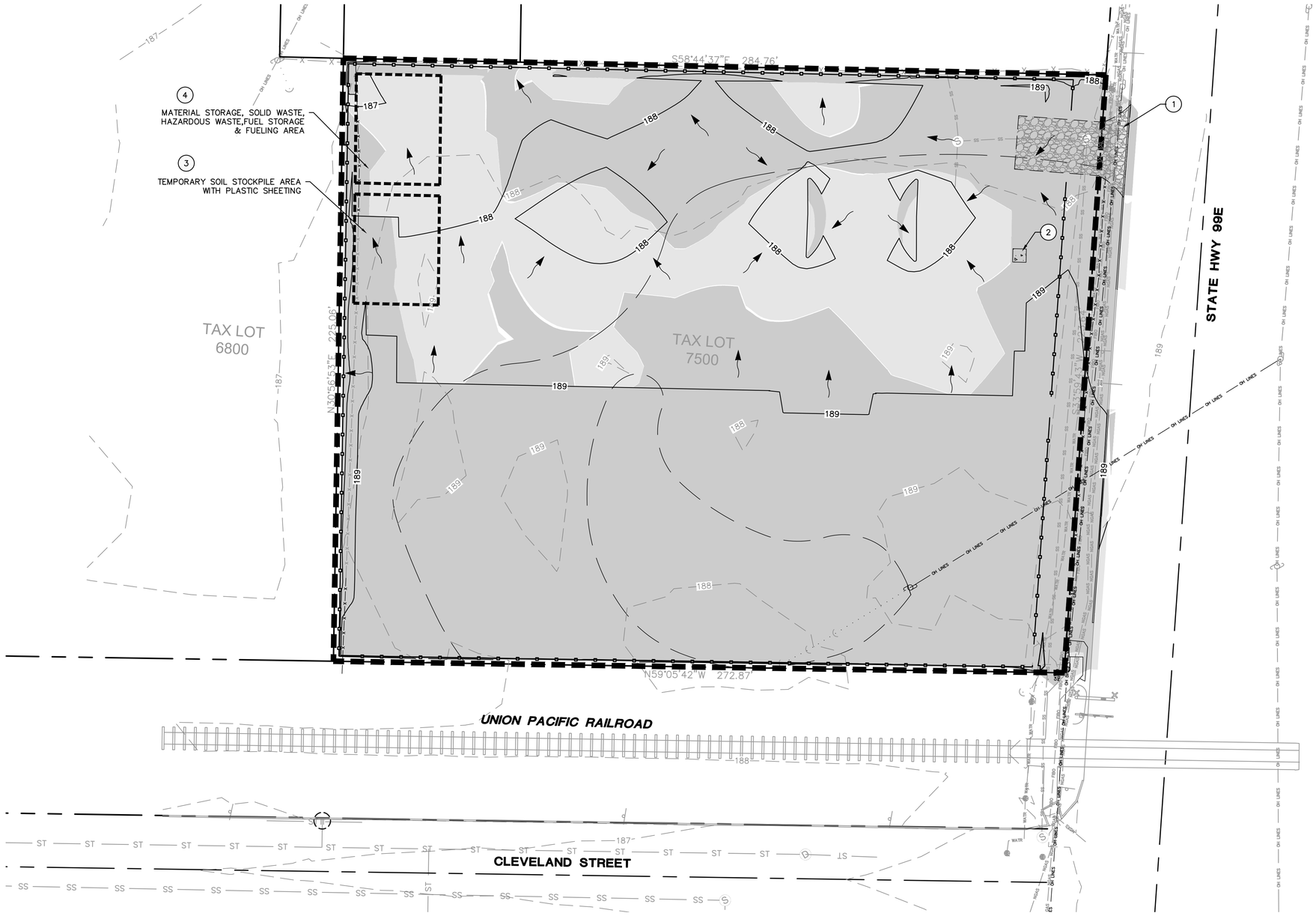
ESCP EXISTING CONDITIONS PLAN

DATE: 12/13/21
DRAWN: JS
CHECKED: CFT
REVISIONS:

SHEET NUMBER

EC2.0

JOB NUMBER: A21194.10



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2. STRAW MULCH AND/OR HYDROSEED SHALL BE USED FOR TEMPORARY STABILIZATION OF EXPOSED SOILS AFTER EXCAVATION.

CONTRACTOR SHALL ENSURE THAT POSITIVE DRAINAGE IS MAINTAINED ACROSS EXPOSED AREAS AND NO LOW POINTS ARE CREATED ON-SITE AHEAD OF HOLIDAYS/WEEKENDS OR WHEN THERE IS ANY CHANCE OF RAIN.

GRADING PHASE INFORMATION

1. ONSITE SOIL TYPES:
   SOIL TYPE – AMITY SILT LOAM
   0.5 TO 7.14 PERCENT SLOPES: PERCENTAGE OF SITE (%)
2. EXISTING VEGETATION CONSISTS OF TALL GRASS
3. CUT AND FILL DATA:
   - CUT: 135 CU. YD
   - FILL: 1320 CU. YD
   - NET ADJUSTED: 1185 CU. YD (FILL)
4. ONSITE FILL MATERIALS:
   - NATIVE SOIL
   - CRUSHED ROCK
5. PHASE SCHEDULE:
   - 06/23 TO 08/23

NORTH

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet

EROSION CONTROL PLAN NOTES

1. APPROVAL OF THIS EROSION/SEDIMENTATION CONTROL (ESC) PLAN DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G., SIZE AND LOCATION OF ROADS, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.).
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9. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

PRE-CONSTRUCTION, CLEARING, AND DEMOLITION NOTES

1. ALL BASE ESC MEASURES (INLET PROTECTION, PERIMETER SEDIMENT CONTROL, GRAVEL CONSTRUCTION ENTRANCES, ETC.) MUST BE IN PLACE, FUNCTIONAL, AND APPROVED IN AN INITIAL INSPECTION, PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
2. ALL "SEDIMENT BARRIERS (TO BE INSTALLED AFTER GRADING)" SHALL BE INSTALLED IMMEDIATELY FOLLOWING ESTABLISHMENT OF FINISHED GRADE AS SHOWN ON THESE PLANS.
3. SENSITIVE RESOURCES INCLUDING, BUT NOT LIMITED TO, TREES, WETLANDS, AND RIPARIAN PROTECTION AREAS SHALL BE CLEARLY DELINEATED WITH ORANGE CONSTRUCTION FENCING OR CHAIN LINK FENCING IN A MANNER THAT IS CLEARLY VISIBLE TO ANYONE IN THE AREA. NO ACTIVITIES ARE PERMITTED TO OCCUR BEYOND THE CONSTRUCTION BARRIER.
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(X) CONSTRUCTION NOTES

1 INSTALL CONSTRUCTION ENTRANCE, PER CWS DETAIL 855/EC8.0

2 INSTALL CONCRETE WASHOUT, PER CWS DETAIL 900/EC8.0

3 TEMPORARY STOCKPILE WITH PLASTIC SHEETING, PER CWS DETAIL 810/EC8.0

4 STAGING AND MATERIAL STORAGE

LEGEND

- EXISTING CONTOUR MINOR — 102
- EXISTING CONTOUR MAJOR — 100
- PROPOSED CONTOUR MAJOR — 102
- PROPOSED CONTOUR MINOR — 100
- LIMIT OF DISTURBANCE
- SEDIMENT FENCE PER CWS DETAIL 875/EC8.0
- CONSTRUCTION ENTRANCE PER CWS DETAIL 855/EC8.0
- CONCRETE WASHOUT PER CWS DETAIL DETAIL 900/EC8.0
- FLOW ARROW (FG)
- AREA OF CUT
- AREA OF FILL
- INLET PROTECTION PER CWS DETAIL 920/EC8.0

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 10, 2012
CHRISTOPHER F. THORNTON
EXPIRES: 6/30/2024

AAI engineering, inc.
ENGINEERING
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503.620.3039 tel | 503.620.3539 fax | www.aaieng.com

119 N PACIFIC HWY

WOODBURN, OR

SHEET TITLE

ESCP DEMO, GRADING, EXCAVATING, AND LAND DEVELOPMENT PLAN

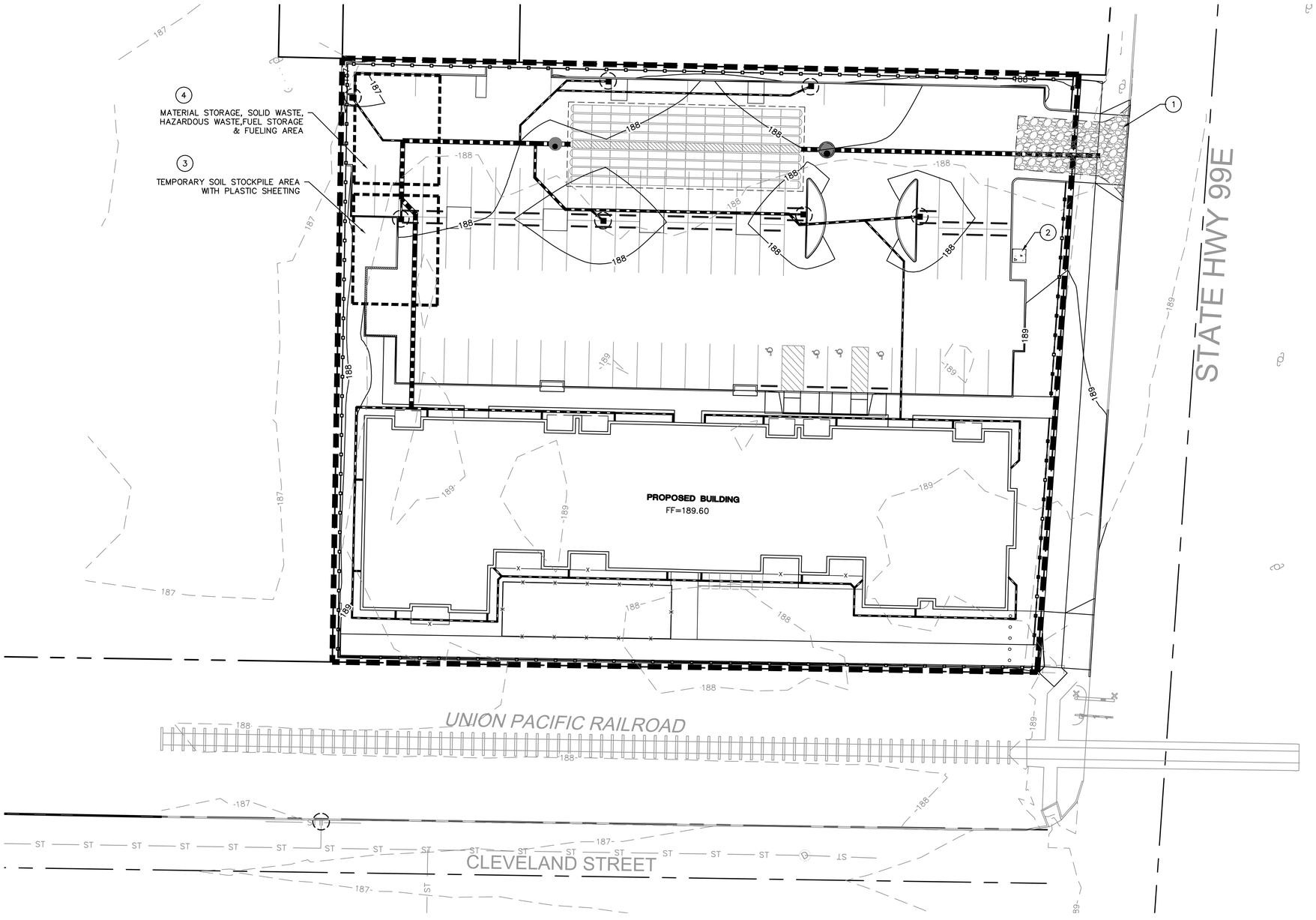
DATE: 12/13/21
DRAWN: JS
CHECKED: CFT
REVISIONS:

SHEET NUMBER

EC3.0

JOB NUMBER: A21194.10

02/24/2023 – CONSTRUCTION DOCUMENTS



UTILITIES PHASE NOTES

1. STORMWATER TO BE INFILTRATED IN PLACE DURING CONSTRUCTION. PROTECT DOWNSTREAM CATCH BASINS.
2. ANY TRENCH DEWATERING SHALL BE DONE SO THE WATER INFILTRATES ON SITE.
3. STRAW MULCH AND/OR HYDROSEED SHALL BE USED FOR TEMPORARY STABILIZATION OF ANY EXPOSED TRENCH SPOILS (INCLUDING STOCKPILE IF PLASTIC SHEETING DOESN'T WORK).

UTILITIES PHASE INFORMATION

1. PHASE SCHEDULE:
   - 08/23 TO 10/23

PRE-CONSTRUCTION, CLEARING, AND DEMOLITION NOTES

1. ALL BASE ESC MEASURES (INLET PROTECTION, PERIMETER SEDIMENT CONTROL, GRAVEL CONSTRUCTION ENTRANCES, ETC.) MUST BE IN PLACE, FUNCTIONAL, AND APPROVED IN AN INITIAL INSPECTION, PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
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4. CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES INCLUDING BUT NOT LIMITED TO, STREET SWEEPING, AND VACUUMING MAY BE REQUIRED TO INSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
5. RUN-ON AND RUN-OFF CONTROLS SHALL BE IN PLACE AND FUNCTIONING PRIOR TO BEGINNING SUBSTANTIAL CONSTRUCTION ACTIVITIES. RUN-ON AND RUN-OFF CONTROL MEASURES INCLUDE: SLOPE DRAINS (WITH OUTLET PROTECTION), CHECK DAMNS, SURFACE ROUGHENING, AND BANK STABILIZATION.

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3 TEMPORARY STOCKPILE WITH PLASTIC SHEETING, PER CWS DETAIL 810/EC8.0

4 STAGING AND MATERIAL STORAGE

LEGEND

EXISTING CONTOUR MINOR	102
EXISTING CONTOUR MAJOR	100
PROPOSED CONTOUR MAJOR	102
PROPOSED CONTOUR MINOR	100
LIMIT OF DISTURBANCE	
SEDIMENT FENCE PER CWS DETAIL 875/EC8.0	
CONSTRUCTION ENTRANCE PER CWS DETAIL 855/EC8.0	
CONCRETE WASHOUT PER CWS DETAIL 900/EC8.0	
INLET PROTECTION PER CWS DETAIL 920/EC8.0	

CONTRACTOR SHALL ENSURE THAT POSITIVE DRAINAGE IS MAINTAINED ACROSS EXPOSED AREAS AND NO LOW POINTS ARE CREATED ON-SITE AHEAD OF HOLIDAYS/WEEKENDS OR WHEN THERE IS ANY CHANCE OF RAIN.

NORTH

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet

02/24/2023 – CONSTRUCTION DOCUMENTS

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 10, 2012
CHRISTOPHER F. THORNTON
EXPIRES: 6/30/2024

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119 N PACIFIC HWY

WOODBURN, OR

SHEET TITLE

ESCP STREET AND UTILITIES

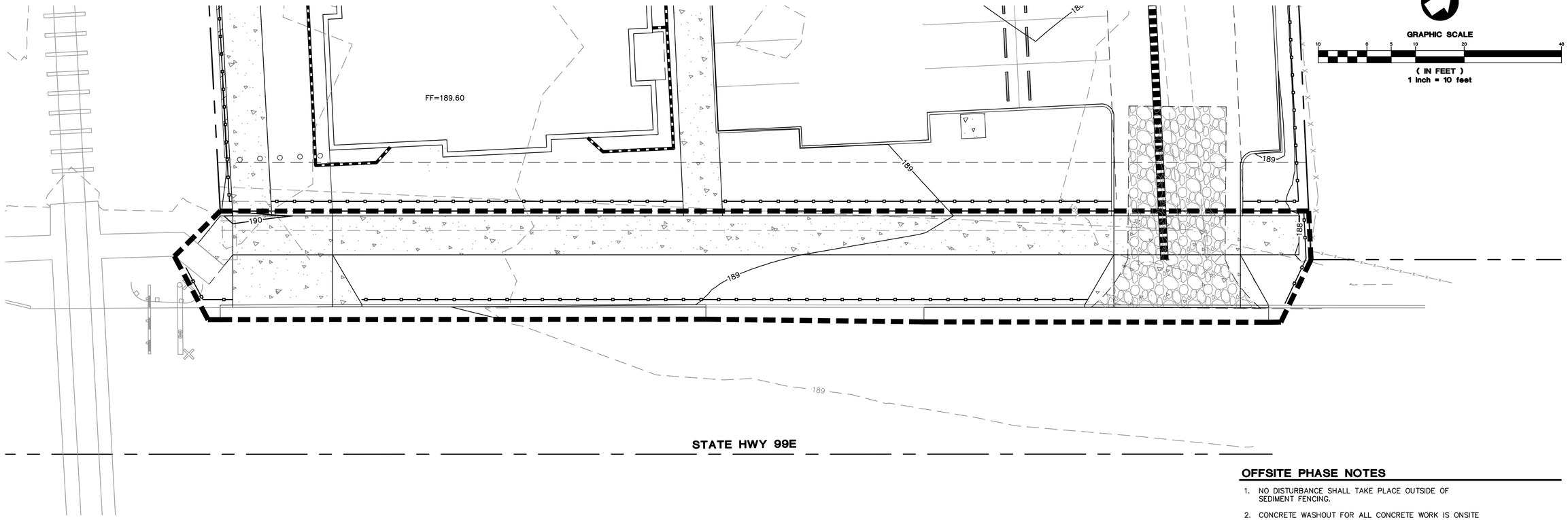
DATE:	12/13/21
DRAWN:	JS
CHECKED:	CFT

REVISIONS:

SHEET NUMBER

EC4.0

JOB NUMBER: A21194.10



NORTH

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 feet

OFFSITE PHASE NOTES

1. NO DISTURBANCE SHALL TAKE PLACE OUTSIDE OF SEDIMENT FENCING.
2. CONCRETE WASHOUT FOR ALL CONCRETE WORK IS ONSITE AS SHOWN ON SHEET EC-3.0.
3. CATCH BASIN FILTER INSERTS TO REMAIN UNTIL THE COMPLETION OF THE OFFSITE PHASE.

OFFSITE PHASE INFORMATION

1. PHASE SCHEDULE:
   - 8/23 TO 9/23

LEGEND

- EXISTING CONTOUR MINOR — 102
- EXISTING CONTOUR MAJOR — 100
- PROPOSED CONTOUR MAJOR — 102
- PROPOSED CONTOUR MINOR — 100
- LIMIT OF DISTURBANCE
- SEDIMENT FENCE PER CWS DETAIL 875/EC8.0
- CONSTRUCTION ENTRANCE PER CWS DETAIL 855/EC8.0
- CONCRETE WASHOUT PER CWS DETAIL 900/EC8.0
- INLET PROTECTION PER CWS DETAIL 920/EC8.0

CONTRACTOR SHALL ENSURE THAT POSITIVE DRAINAGE IS MAINTAINED ACROSS EXPOSED AREAS AND NO LOW POINTS ARE CREATED ON-SITE AHEAD OF HOLIDAYS/WEEKENDS OR WHEN THERE IS ANY CHANCE OF RAIN.

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JULY 10, 2012
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119 N PACIFIC HWY

WOODBURN, OR

SHEET TITLE

ESCP OFFSITE PACIFIC HWY PLAN

DATE: 12/13/21
DRAWN: JS
CHECKED: CFT

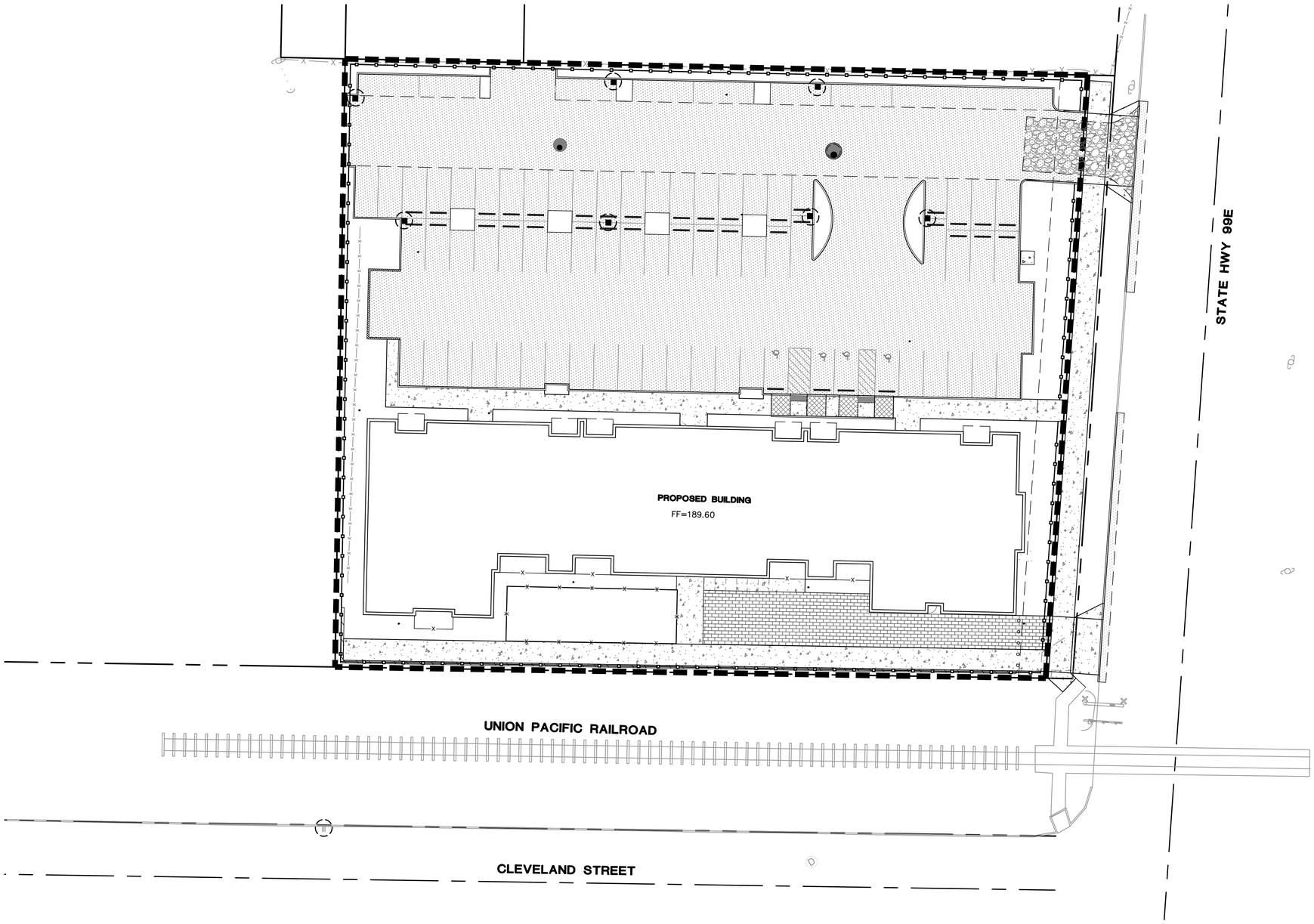
REVISIONS:

SHEET NUMBER

EC5.0

JOB NUMBER: A21194.10

02/24/2023 – CONSTRUCTION DOCUMENTS



VERTICAL CONSTRUCTION PHASE NOTES

1. PROTECT INSTALLED STORM AND SANITARY CATCHBASINS UNTIL PROJECT IS COMPLETE
2. ALL CONSTRUCTION MATERIALS THAT COULD LEAD TO POLLUTION IF SPILLED NOT IN IMMEDIATE USE SHALL BE STORED IN A STORAGE BOX ON SITE IN A LOCATION WITH MINIMAL CONSTRUCTION ACTIVITY TO PREVENT SPILLS AND EXPOSURE TO WET WEATHER.
3. FOR SPILL PREVENTION SPILL KITS AND OTHER SPILL CONTAINMENT DEVICES (I.E. WATTLES, ABSORBENT SOCKS/BOOMS, ORGANIC OIL ABSORBENT AGENT, ETC.) SHALL BE KEPT ONSITE WITHIN THE STORAGE CONTAINER MENTIONED ABOVE THROUGH THE COMPLETION OF THE PROJECT.

VERTICAL CONSTRUCTION PHASE INFORMATION

1. PHASE SCHEDULE:
   - 10/23 TO 08/24

LEGEND

- LIMIT OF DISTURBANCE
- SEDIMENT FENCE PER CWS DETAIL 875/EC8.0
- CONSTRUCTION ENTRANCE PER CWS DETAIL 855/EC8.0
- CONCRETE WASHOUT PER CWS DETAIL 900/EC8.0
- INLET PROTECTION PER CWS DETAIL 920/EC8.0

CONTRACTOR SHALL ENSURE THAT POSITIVE DRAINAGE IS MAINTAINED ACROSS EXPOSED AREAS AND NO LOW POINTS ARE CREATED ON-SITE AHEAD OF HOLIDAYS/WEEKENDS OR WHEN THERE IS ANY CHANCE OF RAIN.

NORTH

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet

02/24/2023 – CONSTRUCTION DOCUMENTS

REGISTERED PROFESSIONAL ENGINEER
90358PE
OREGON
JULY 10, 2012
CHRISTOPHER F. THORNTON
EXPIRES: 6/30/2024

AAI afghan associates, inc.
ENGINEERING
4975 SW Griffith Drive | Suite 300 | Beaverton, OR | 97005
503.620.0039 tel | 503.620.3539 fax | www.aaieng.com

119 N PACIFIC HWY

WOODBURN, OR

SHEET TITLE

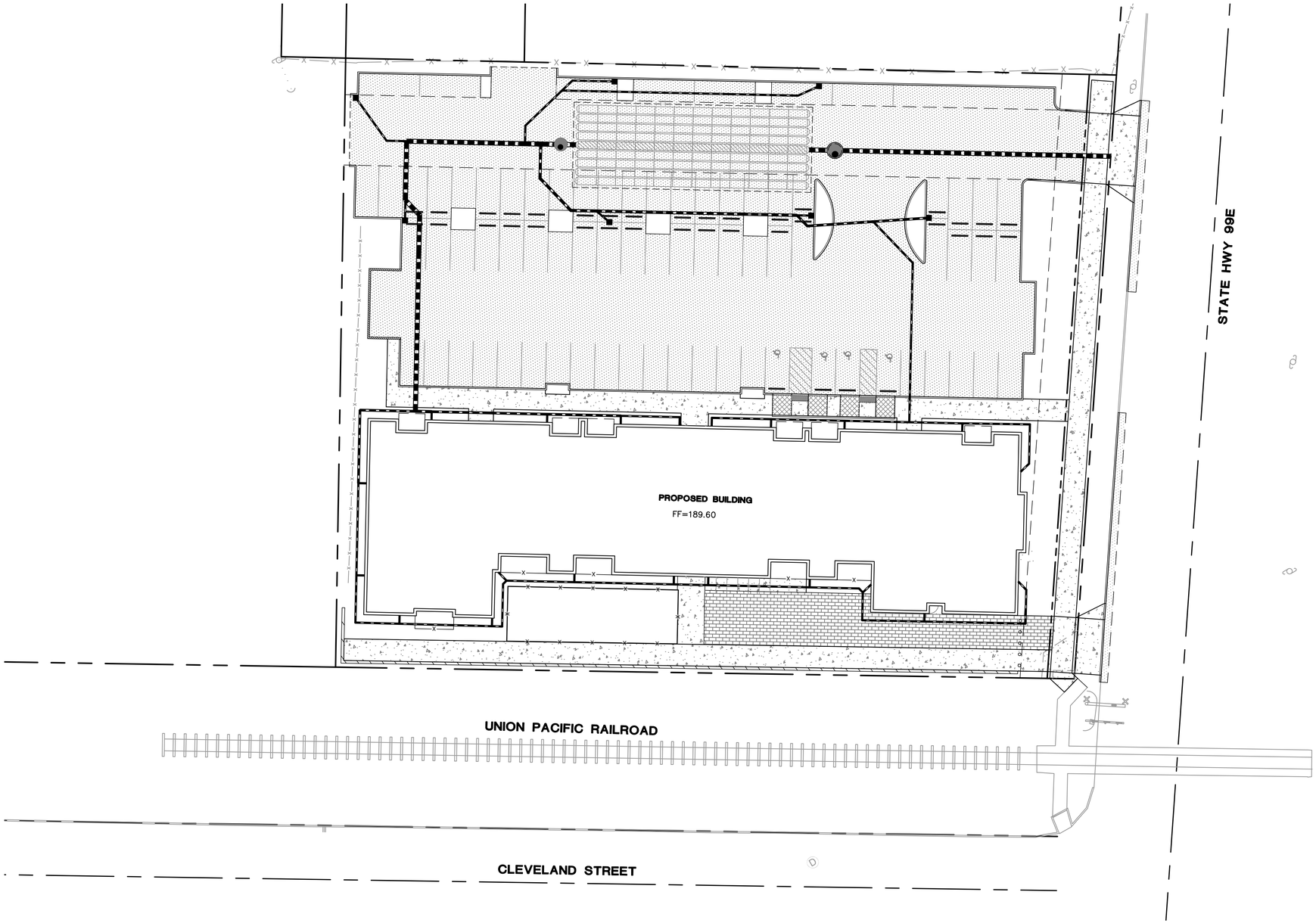
ESCP VERTICAL CONSTRUCTION PLAN

DATE: 12/13/21
DRAWN: JS
CHECKED: CFT
REVISIONS:

SHEET NUMBER

EC6.0

JOB NUMBER: A21194.10



FINAL STABILIZATOIN PHASE NOTES

1. ALL PERIMETER SEDIMENT FENCING AND CATCHBASIN FILTER INSERTS TO BE REMOVED UPON COMPLETION OF THIS PHASE.

FINAL STABILIZATION PHASE INFORMATION

1. PHASE SCHEDULE:
   - 08/24 TO 10/24

CONTRACTOR SHALL ENSURE THAT POSITIVE DRAINAGE IS MAINTAINED ACROSS EXPOSED AREAS AND NO LOW POINTS ARE CREATED ON-SITE AHEAD OF HOLIDAYS/WEEKENDS OR WHEN THERE IS ANY CHANCE OF RAIN.

NORTH

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet

02/24/2023 – CONSTRUCTION DOCUMENTS

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 10, 2012
CHRISTOPHER F. THORNTON
EXPIRES: 6/30/2024

AAI engineering, inc.
ENGINEERING
4975 SW Griffith Drive | Suite 300 | Beaverton, OR | 97005
503.620.3039 tel | 503.620.3539 fax | www.aaieng.com

119 N PACIFIC HWY

WOODBURN, OR

SHEET TITLE

ESCP FINAL LANDSCAPING AND STABILIZATION PLAN

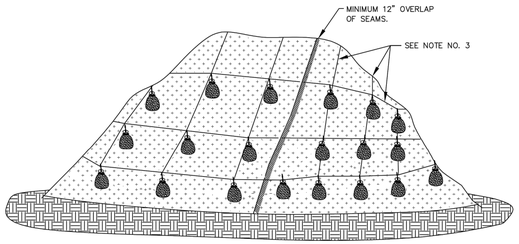
DATE: 12/13/21
DRAWN: JS
CHECKED: CFT
REVISIONS:

SHEET NUMBER

EC7.0

JOB NUMBER: A21194.10

FOR FURTHER INFORMATION ON DESIGN CRITERIA SEE CHAPTER 4 OF CLEAN WATER SERVICES EROSION PREVENTION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.



PLASTIC SHEETING

NOTES:

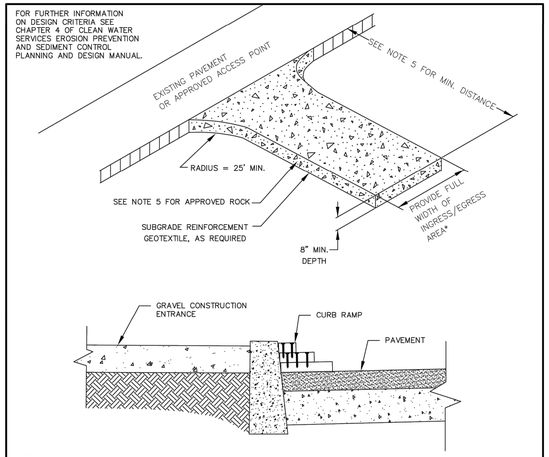
1. MINIMUM 12" OVERLAP OF ALL SEAMS REQUIRED.
2. PERIMETER SEDIMENT CONTROL BMP TO BE INSTALLED A MINIMUM OF 3' FROM TOE OF STOCKPILE.
3. COVERING MAINTAINED TIGHTLY IN PLACE BY USING SANDBAGS OR APPROVED EQUAL ON ROPES WITH A MAXIMUM 10' GRID SPACING IN ALL DIRECTIONS.
4. PLASTIC TO EXTEND MINIMUM 1' BEYOND TOE OF SLOPE.
5. AS APPROPRIATE, BMP'S SHALL BE INSTALLED TO CONVEY WATER DISCHARGE FROM STOCKPILE AREAS.

PLASTIC SHEETING

DRAWING NO. 810 REVISED 10-31-19

CleanWater Services

FOR FURTHER INFORMATION ON DESIGN CRITERIA SEE CHAPTER 4 OF CLEAN WATER SERVICES EROSION PREVENTION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.



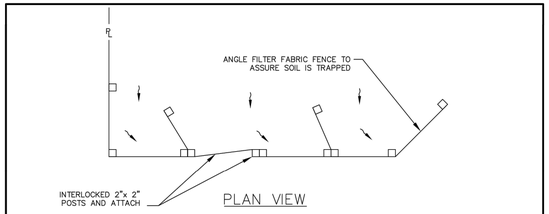
NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF- WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
4. WHERE RUNOFF CONTAINING SEDIMENT LADEN WATER IS LEAVING THE SITE VIA THE CONSTRUCTION ENTRANCE, OTHER MEASURES SHALL BE IMPLEMENTED TO DIVERT RUNOFF THROUGH AN APPROVED FILTERING SYSTEM.
5. DIMENSIONS
   SINGLE FAMILY
   20' LONG BY 20' WIDE 8" DEEP OF ¾" MINUS CLEAN ROCK.
   COMMERCIAL/SITE DEVELOPMENT
   50' LONG BY 20' WIDE 3-6" CLEAN ROCK, GOVERNING AUTHORITY MAY REQUIRE GEOTEXTILE FABRIC TO PREVENT SUB-SOIL PUMPING.

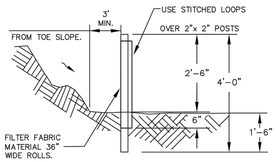
CONSTRUCTION ENTRANCE

DRAWING NO. 855 REVISED 10-31-19

CleanWater Services



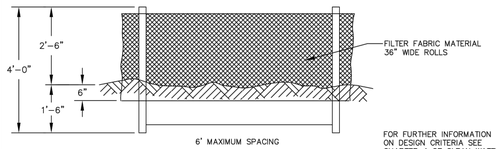
PLAN VIEW



PROFILE

NOTES:

1. SEDIMENT FENCE TO HAVE STITCHED LOOPS AROUND 2" x 2" POSTS.
2. BURY BOTTOM OF FILTER FABRIC 6" VERTICALLY BELOW FINISHED GRADE.
3. 2"x 2" FIR, PINE OR STEEL FENCE POSTS.
4. POSTS TO BE INSTALLED ON UPHILL SIDE OF SLOPE.
5. COMPACT BOTH SIDES OF FILTER FABRIC TRENCH.
6. PANELS MUST BE PLACED ACCORDING TO SPACING ON DRAWING NO. 940.



FRONT VIEW

FOR FURTHER INFORMATION ON DESIGN CRITERIA SEE CHAPTER 4 OF CLEAN WATER SERVICES EROSION PREVENTION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.

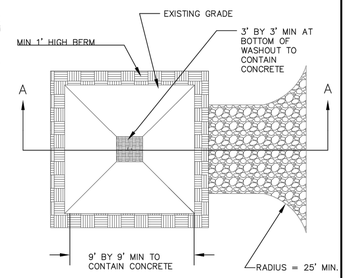
SEDIMENT FENCE

DRAWING NO. 875 REVISED 10-31-19

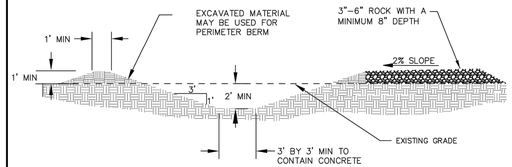
CleanWater Services

NOTES:

1. WASHOUT FACILITIES SHALL BE MAINTAINED TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM FREEBOARD OF 12 INCHES.
2. WASHOUT FACILITIES MUST BE CLEANED, OR NEW FACILITIES MUST BE CONSTRUCTED AND READY FOR USE ONCE THE WASHOUT IS 75% FULL.
3. IF THE WASHOUT IS NEARING CAPACITY, VACUUM AND DISPOSE OF THE WASTE MATERIAL IN AN APPROVED MANNER.
4. TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE LOCATED A MINIMUM OF 50 FT FROM SENSITIVE AREAS INCLUDING OPEN DRAINAGE FACILITIES AND WATER SOURSES.
5. CONCRETE WASHOUT FACILITIES SHALL BE CONSTRUCTED AND MAINTAINED IN SUFFICIENT QUANTITY AND SIZE TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.
6. INSTALL CONCRETE WASHOUT SIGN WITHIN 30 FEET OF TEMPORARY CONCRETE WASHOUT FACILITY.
7. TEMPORARY CONCRETE WASHOUTS MAY BE A PREFABRICATED CONTAINER THAT IS PORTABLE AND REUSABLE.



PLAN

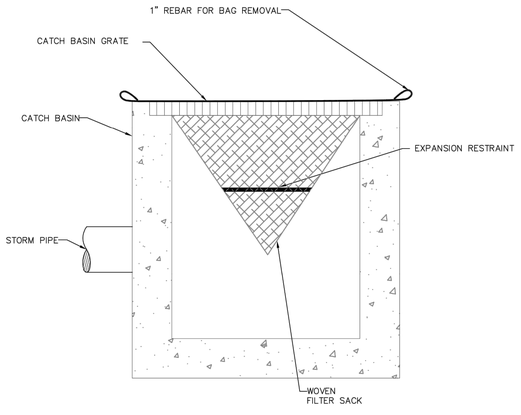


SECTION A-A

CONCRETE WASHOUT

DRAWING NO. 900 REVISED 10-31-19

CleanWater Services



CATCH BASIN INSERT

NOTE:

1. RECESSED CURB INLET CATCH BASINS MUST BE BLOCKED WHEN USING FILTER FABRIC INLET SACKS. SIZE OF FILTER FABRIC INLET SACKS TO BE DETERMINED BY MANUFACTURER.

FOR FURTHER INFORMATION ON DESIGN CRITERIA SEE CHAPTER 4 OF CLEAN WATER SERVICES EROSION PREVENTION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.

INLET PROTECTION TYPE 5

DRAWING NO. 920 REVISED 10-31-19

CleanWater Services

GENERAL EROSION CONTROL NOTES:

1. COMPLY WITH ALL APPLICABLE PROVISIONS IN CHAPTER 6 OF THE DESIGN AND CONSTRUCTION STANDARDS (CURRENT): R&O 19-5 AS AMENDED BY R&O 19-22, ADOPTED NOVEMBER 12, 2019.
2. ALL PUMPING OF SEDIMENT LADEN WATER SHALL BE DISCHARGED OVER AN UNDISTURBED, PREFERABLY VEGETATED AREA, AND THROUGH A SEDIMENT CONTROL BMP LIKE A FILTER BAG.
3. ALL EXPOSED SOILS MUST BE COVERED DURING WET WEATHER PERIOD, OCTOBER 1, - MAY 31.
4. HOLD A PRECONSTRUCTION MEETING WITH PROJECT CONSTRUCTION PERSONAL THAT INCLUDES THE INSPECTOR TO DISCUSS EROSION AND SEDIMENT CONTROL MEASURES AND CONSTRUCTION LIMITS.

PRE-CONSTRUCTION, CLEARING, AND DEMOLITION NOTES:

1. SEDIMENT BARRIERS APPROVED FOR USE INCLUDE SEDIMENT FENCE, BERMS CONSTRUCTED OUT OF MULCH, CHIPPINGS, STRAW WATTLES OR OTHER APPROVED MATERIALS.
2. ALL BASE ESC MEASURES (INLET PROTECTION, PERIMETER SEDIMENT CONTROL, GRAVEL CONSTRUCTION ENTRANCES, ETC.) MUST BE IN PLACE, FUNCTIONAL AND APPROVED IN AN INITIAL INSPECTION PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
3. RUN-ON AND RUN-OFF SHALL BE IN PLACE AND FUNCTIONING PRIOR TO BEGINNING SUBSTANTIAL CONSTRUCTION ACTIVITIES. RUN-ON AND RUN-OFF CONTROL MEASURES INCLUDE: SLOPE DRAINS (WITH OUTLET PROTECTION), CHECK DAMS, SURFACE ROUGHENING, AND BANK STABILIZATION.

GRADING, STREET AND UTILITY EROSION AND SEDIMENT CONSTRUCTION NOTES:

1. IF VEGETATED SEED MIXES ARE SPECIFIED, SEEDING MUST TAKE PLACE NO LATER THAN SEPTEMBER 1ST. VEGETATED CORRIDOR AREAS REQUIRE NATIVE SEED MIXES, SEE RESTORATION PLAN FOR APPROPRIATE SEED MIX IN THOSE AREAS. SEED USED FOR TEMPORARY OR PERMANENT SEEDING OUTSIDE VEGETATED CORRIDORS SHALL BE COMPOSED OF ONE OF THE FOLLOWING MIXTURES, UNLESS OTHERWISE AUTHORIZED:
   A. DWARF GRASS MIX (MIN. 100 LB./AC.)
      1. DWARF PERENNIAL RYEGRASS (80% BY WEIGHT)
      2. CREEPING RED FESCUE (20% BY WEIGHT)
   B. STANDARD HEIGHT GRASS MIX (MIN. 100LB.AC)
      1. ANNUAL RYEGRASS (40% BY WEIGHT)
      2. TURF-TYPE FESCUE (60% BY WEIGHT)
2. SLOPE TO RECEIVE TEMPORARY OR PERMANENT SEEDING HAVE THE SURFACE ROUGHENED BY MEANS OF TRACK-WALKING OR THE USE OF OTHER APPROVED IMPLEMENTS. SURFACE ROUGHENING IMPROVES SEED BEDDING AND REDUCES RUN-OFF VELOCITY.
3. LONG TERM SLOPE STABILIZATION MEASURES SHALL INCLUDE THE ESTABLISHMENT OF PERMANENT VEGETATIVE COVER VIA SEEDING WITH APPROVED MIX AND APPLICATION RATE.
4. TEMPORARY SLOPE STABILIZATION MEASURES SHALL INCLUDE: COVERING EXPOSED SOIL WITH PLASTIC SHEETING, STRAW MULCHING, WOOD CHIPS, OR OTHER APPROVED MEASURES.
5. STOCKPILED SOIL OR STRIPPINGS SHALL BE PLACED IN A STABLE LOCATION AND CONFIGURATION. DURING "WET WEATHER" PERIODS, STOCKPILES SHALL BE COVERED WITH PLASTIC SHEETING OR STRAW MULCH. SEDIMENT FENCE IS REQUIRED AROUND THE PERIMETER OF THE STOCKPILE.
6. EXPOSED CUT OR FILL AREAS SHALL BE STABILIZED THROUGH THE USE OF TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS OR MATS, MID-SLOPE SEDIMENT FENCES OR WATTLES, OR OTHER APPROPRIATE MEASURES. SLOPES EXCEEDING 25% MAY REQUIRE ADDITIONAL EROSION CONTROL MEASURES.
7. AREAS SUBJECT TO WIND EROSION SHALL USE APPROPRIATE DUST CONTROL MEASURES INCLUDING THE APPLICATION OF A FINE SPRAY OF WATER, PLASTIC SHEETING, STRAW MULCHING, OR OTHER APPROVED MEASURES.
8. CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES INCLUDING, BUT NOT LIMITED TO, TIRE WASHES, STREET SWEEPING, AND VACUUMING MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
9. USE BMPS SUCH AS CHECK-DAMS, BERMS, AND INLET PROTECTION TO PREVENT RUN-OFF FROM REACHING DISCHARGE POINTS.
10. COVER CATCH BASINS, MANHOLES AND OTHER DISCHARGE POINTS WHEN APPLYING SEAL COAT, TACT COAT ETC. TO PREVENT PRODUCTS FROM ENTERING THE STORM SYSTEM.

EROSON AND SEDIMENT CONTROL BMP IMPLEMENTATION:

1. ALL SEDIMENT BARRIERS TO BE INSTALLED AFTER GRADING SHALL BE INSTALLED IMMEDIATELY FOLLOWING ESTABLISHMENT OF FINISHED GRADE AS SHOWN ON THESE PLANS.
2. LONG TERM SLOPE STABILIZATION MEASURES "INCLUDING MATTING" SHALL BE IN PLACE OVER ALL EXPOSED SOILS BY OCTOBER 1.
3. THE STORM WATER FACILITY SHALL BE CONSTRUCTED AND LANDSCAPED PRIOR TO THE STORM WATER SYSTEM FUNCTIONING AND SITE PAVING.
4. INLET PROTECTION SHALL BE IN--PLACE IMMEDIATELY FOLLOWING PAVING ACTIVITIES.

STANDARD EROSION CONTROL NOTES FOR SITES 1 ACRE AND GREATER

DRAWING NO. 946 REVISED 6-30-21

CleanWater Services

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503.620.3030 tel | 503.620.3539 fax | www.aaieng.com

119 N PACIFIC HWY

WOODBURN, OR

SHEET TITLE

ESCP DETAILS

DATE: 12/13/21
DRAWN: JS
CHECKED: CFT

REVISIONS:

SHEET NUMBER

EC8.0

JOB NUMBER: A21194.10

02/24/2023 – CONSTRUCTION DOCUMENTS

F:\2021\A21194.10 – 119 N Pacific Hwy-Woodburn\Civil Cad\Sheets\1200C\A21194.EC8.0 – DETAILS.dwg : Mar. 8, 23 – 1:39 PM jsparrowgrove

Onsite Plans

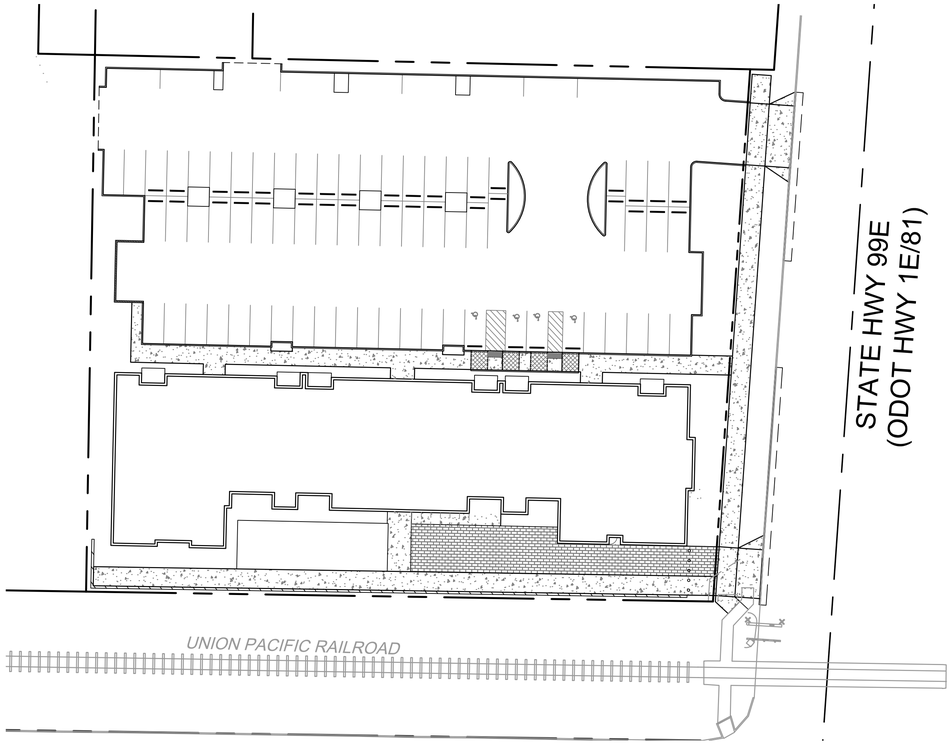
119 N PACIFIC HWY
WOODBURN, OREGON

119 N PACIFIC HWY
WOODBURN, OR 97071
LATITUDE = 45° 8' 11.13"
LONGITUDE = -122° 50' 42.65"

LEGAL DESCRIPTION:
TAX LOT 7500
MAP NW1/4 SEC. 17, T5S, R1W, W.M.

PROPERTY DESCRIPTION:
LOCATED IN THE NORTHWEST ONE-QUARTER OF SECTION 17, TOWNSHIP 5 SOUTH, RANGE 1 WEST, OF THE WILLAMETTE MERIDIAN, CITY OF WOODBURN, MARION COUNTY, OREGON

NORTH
VICINITY MAP
SCALE: NTS



NORTH
SITE PLAN
SCALE: 1" = 30'

AAI ENGINEERING — **CIVIL ENGINEER**
CONTACT: CHRISTOPHER THORNTON, PE
4875 SW GRIFFITH DRIVE, SUITE 100
BEAVERTON, OREGON 97005
PH: 503-352-7686
FAX: 503-620-5539
EMAIL: CHRISTOPHERT@AAIENG.COM

STUDIO 3 — **ARCHITECT**
CONTACT: JIM TOPOREK
275 COURT STREET NE
SALEM, OR 97301
PHONE: 503-390-6500
EMAIL: JIM@STUDIO3ARCHITECTURE.COM

LAZER SITE SURVEYING — **SURVEYOR**
2003 25TH STREET SE SALEM, OR 97302
PHONE: 503-581-6362

SHEET LIST TABLE	
SHEET NUMBER	**SHEET TITLE**
C0.0	COVER SHEET
C0.1	GENERAL NOTES
C0.2	EXISTING CONDITIONS PLAN
C0.3	DEMOLITION PLAN
C1.0	HARDSCAPE PLAN
C2.0	GRADING PLAN
C3.0	STORMWATER PLAN
C3.1	WATER AND SANITARY PLAN
C4.0	DETAILS
C4.1	DETAILS
C4.2	DETAILS
C4.3	DETAILS

02/24/2023 – CONSTRUCTION DOCUMENTS

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 10, 2021
CHRISTOPHER F. THORNTON
EXPIRES: 6/30/2024

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4875 SW Griffith Drive | Suite 300 | Beaverton, OR | 97005
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119 N PACIFIC HWY
WOODBURN, OR

SHEET TITLE
COVER SHEET

DATE: 12/13/21
DRAWN: JS
CHECKED: CFT
REVISIONS:

SHEET NUMBER
C0.0

JOB NUMBER: A21194.10

NOTICE TO EXCAVATORS: ATTENTION: OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THE RULES BY CALLING THE CENTER. (NOTE: THE TELEPHONE NUMBER FOR THE OREGON UTILITY NOTIFICATION CENTER IS (503)-232-1987).

POTENTIAL UNDERGROUND FACILITY OWNERS

DIG SAFELY

CALL THE OREGON ONE-CALL CENTER
1-800-332-2344

EMERGENCY TELEPHONE NUMBERS

NW NATURAL GAS	
M-F 7am-5pm	503-226-4211 EXT.4313
AFTER HOURS	503-226-4211
PGE	503-464-7777
QWEST	1-800-573-1311
VERIZON	1-800-483-1000

811

Know what's **below.**
Call before you dig.

GENERAL NOTES

1. CONSTRUCTION LAYOUT (ALL ACTUAL LINES AND GRADES) SHALL BE STAKED BY A PROFESSIONAL SURVEYOR, REGISTERED IN THE STATE OF OREGON, BASED ON COORDINATES, DIMENSIONS, BEARINGS, AND ELEVATIONS, AS SHOWN, ON THE PLANS.
2. PROJECT CONTROL SHALL BE FIELD VERIFIED AND CHECKED FOR RELATIVE HORIZONTAL POSITION PRIOR TO BEGINNING CONSTRUCTION LAYOUT.
3. PROJECT CONTROL SHALL BE FIELD VERIFIED AND CHECKED FOR RELATIVE VERTICAL POSITION BASED ON THE BENCHMARK STATED HEREON, PRIOR TO BEGINNING CONSTRUCTION LAYOUT.
4. WHEN DIMENSIONS AND COORDINATE LOCATIONS ARE REPRESENTED – DIMENSIONS SHALL HOLD OVER COORDINATE LOCATION. NOTIFY THE CIVIL ENGINEER OF RECORD IMMEDIATELY UPON DISCOVERY.
5. BUILDING SETBACK DIMENSIONS FROM PROPERTY LINES SHALL HOLD OVER ALL OTHER CALLOUTS. PROPERTY LINES AND ASSOCIATED BUILDING SETBACKS SHALL BE VERIFIED PRIOR TO CONSTRUCTION LAYOUT.
6. CONTRACTOR SHALL PRESERVE AND PROTECT FROM DAMAGE ALL EXISTING MONUMENTATION DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING AND PAYING FOR THE REPLACEMENT OF ANY MONUMENTS DAMAGED OR REMOVED DURING CONSTRUCTION. NEW MONUMENTS SHALL BE REESTABLISHED BY A LICENSED SURVEYOR.
7. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THESE PLANS, THE PROJECT SPECIFICATIONS AND THE APPLICABLE REQUIREMENTS OF THE 2018 OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE 2017 OREGON PLUMBING SPECIALTY CODE AND LOCAL JURISDICTION REQUIREMENTS.
8. THE COMPLETED INSTALLATION SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES, ORDINANCES AND REGULATIONS. ALL PERMITS, LICENSES AND INSPECTIONS REQUIRED BY THE GOVERNING AUTHORITIES FOR THE EXECUTION AND COMPLETION OF WORK SHALL BE SECURED BY THE CONTRACTOR PRIOR TO COMMENCING CONSTRUCTION.
9. ATTENTION: OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THE RULES BY CALLING THE CENTER. (NOTE: THE TELEPHONE NUMBER FOR THE OREGON UTILITY NOTIFICATION CENTER IS (503) 232-1987). EXCAVATORS MUST NOTIFY ALL PERTINENT COMPANIES OR AGENCIES WITH UNDERGROUND UTILITIES IN THE PROJECT AREA AT LEAST 48 BUSINESS-DAY HOURS, BUT NOT MORE THAN 10 BUSINESS DAYS PRIOR TO COMMENCING AN EXCAVATION, SO UTILITIES MAY BE ACCURATELY LOCATED.
10. THE LOCATION OF EXISTING UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATION ONLY AND ARE NOT GUARANTEED TO BE COMPLETE OR ACCURATE. CONTRACTOR SHALL VERIFY ELEVATIONS, PIPE SIZE, AND MATERIAL TYPES OF ALL UNDERGROUND UTILITIES PRIOR TO COMMENCING WITH CONSTRUCTION AND SHALL BRING ANY DISCREPANCIES TO THE ATTENTION OF AAI ENGINEERING, 72 HOURS PRIOR TO START OF CONSTRUCTION TO PREVENT GRADE AND ALIGNMENT CONFLICTS.
11. THE ENGINEER OR OWNER IS NOT RESPONSIBLE FOR THE SAFETY OF THE CONTRACTOR OR HIS CREW. ALL O.S.H.A. REGULATIONS SHALL BE STRICTLY ADHERED TO IN THE PERFORMANCE OF THE WORK.
12. TEMPORARY AND PERMANENT EROSION CONTROL MEASURES SHALL BE IMPLEMENTED. THE ESC FACILITIES SHOWN IN THESE PLANS ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT LEAVE THE SITE.
13. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL ROADWAYS, KEEPING THEM CLEAN AND FREE OF CONSTRUCTION MATERIALS AND DEBRIS, AND PROVIDING DUST CONTROL AS REQUIRED.
14. TRAFFIC CONTROL SHALL BE PROVIDED BY THE CONTRACTOR THROUGHOUT CONSTRUCTION. CONTRACTOR SHALL PROVIDE A TRAFFIC CONTROL PLAN TO LOCAL JURISDICTION FOR REVIEW AND APPROVAL PRIOR TO COMMENCING CONSTRUCTION.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND SCHEDULING ALL WORK WITH THE OWNER.
16. THE CONTRACTOR SHALL HAVE A FULL SET OF THE CURRENT APPROVED CONSTRUCTION DOCUMENTS INCLUDING ADDENDA ON THE PROJECT SITE AT ALL TIMES.
17. THE CONTRACTOR SHALL KEEP THE ENGINEER AND JURISDICTION INFORMED OF CONSTRUCTION PROGRESS TO FACILITATE SITE OBSERVATIONS AT REQUIRED INTERVALS. 24-HOUR NOTICE IS REQUIRED.
18. EXISTING SURVEY MONUMENTS ARE TO BE PROTECTED DURING CONSTRUCTION OR REPLACED IN ACCORDANCE WITH OREGON REVISED STATUTES 209.140 – 209.155.

CONSTRUCTION NOTES

DEMOLITION

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION AND DISPOSAL OF EXISTING AC, CURBS, SIDEWALKS AND OTHER SITE ELEMENTS WITHIN THE SITE AREA IDENTIFIED IN THE PLANS.
2. EXCEPT FOR MATERIALS INDICATED TO BE STOCKPILED OR TO REMAIN ON OWNER'S PROPERTY, CLEARED MATERIALS SHALL BECOME CONTRACTOR'S PROPERTY, REMOVED FROM THE SITE, AND DISPOSED OF PROPERLY.
3. ITEMS INDICATED TO BE SALVAGED SHALL BE CAREFULLY REMOVED AND DELIVERED STORED AT THE PROJECT SITE AS DIRECTED BY THE OWNER.
4. ALL LANDSCAPING, PAVEMENT, CURBS AND SIDEWALKS, BEYOND THE IDENTIFIED SITE AREA, DAMAGED DURING THE CONSTRUCTION SHALL BE REPLACED TO THEIR ORIGINAL CONDITION OR BETTER.
5. CONCRETE SIDEWALKS SHOWN FOR DEMOLITION SHALL BE REMOVED TO THE NEAREST EXISTING CONSTRUCTION JOINT.
6. SAWCUT STRAIGHT MATCHLINES TO CREATE A BUTT JOINT BETWEEN THE EXISTING AND NEW PAVEMENT.

UTILITIES

1. ADJUST ALL INCIDENTAL STRUCTURES, MANHOLES, VALVE BOXES, CATCH BASINS, FRAMES AND COVERS, ETC. TO FINISHED GRADE.
2. CONTRACTOR SHALL ADJUST ALL EXISTING AND/OR NEW FLEXIBLE UTILITIES (WATER, TV, TELEPHONE, ELEC., ETC.) TO CLEAR ANY EXISTING OR NEW GRAVITY DRAIN UTILITIES (STORM DRAIN, SANITARY SEWER, ETC.) IF CONFLICT OCCURS.
3. CONTRACTOR SHALL COORDINATE WITH PRIVATE UTILITY COMPANIES FOR THE INSTALLATION OF OR ADJUSTMENT TO GAS, ELECTRICAL, POWER AND TELEPHONE SERVICE.
4. BEFORE BACKFILLING ANY SUBGRADE UTILITY IMPROVEMENTS CONTRACTOR SHALL SURVEY AND RECORD MEASUREMENTS OF EXACT LOCATION AND DEPTH AND SUBMIT TO ENGINEER AND OWNER.

STORM AND SANITARY

1. CONNECTIONS TO EXISTING STORM AND SANITARY SEWERS SHALL CONFORM TO THE 2021 OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION, SECTION 00490, "WORK ON EXISTING SEWERS AND STRUCTURES".
2. BEGIN LAYING STORM DRAIN AND SANITARY SEWER PIPE AT THE LOW POINT OF THE SYSTEM, TRUE TO GRADE AND ALIGNMENT INDICATED WITH UNBROKEN CONTINUITY OF INVERT. THE CONTRACTOR SHALL ESTABLISH LINE AND GRADE FOR THE STORM AND SANITARY SEWER PIPE USING A LASER.
3. ALL ROOF DRAIN AND CATCH BASIN LEADERS SHALL HAVE A MINIMUM SLOPE OF 1 PERCENT UNLESS NOTED OTHERWISE IN THE PLANS.
4. ALL STORM AND SANITARY FITTINGS TO BE ECCENTRIC FITTINGS UNLESS OTHERWISE NOTED.

WATER

1. ALL WATER AND FIRE PROTECTION PIPE SHALL HAVE A MINIMUM 36-INCH COVER TO THE FINISH GRADE.
2. ALL WATER AND FIRE PRESSURE FITTINGS SHALL BE PROPERLY RESTRAINED WITH THRUST BLOCKS PER DETAIL.
3. ALL WATER MAIN / SANITARY SEWER CROSSINGS SHALL CONFORM TO THE OREGON STATE HEALTH DEPARTMENT REGULATIONS, CHAPTER 333.

EARTHWORKS

1. CONTRACTOR SHALL PREVENT SEDIMENTS AND SEDIMENT LADEN WATER FROM ENTERING THE STORM DRAINAGE SYSTEM.
2. TRENCH BEDDING AND BACKFILL SHALL BE AS SHOWN ON THE PIPE BEDDING AND BACKFILL DETAIL, THE PROJECT SPECIFICATIONS AND AS REQUIRED IN THE SOILS REPORT. FLOODING OR JETTING THE BACKFILLED TRENCHES WITH WATER WILL NOT BE PERMITTED.
3. SUBGRADE AND TRENCH BACKFILL SHALL BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-698. FLOODING OR JETTING THE BACKFILLED TRENCHES WITH WATER IS NOT PERMITTED.

PAVING

1. SEE ARCHITECTURAL PLANS FOR SIDEWALK FINISHING AND SCORING PATTERNS.

MATERIAL NOTES

1. GENERAL: MATERIALS SHALL BE NEW. THE USE OF MANUFACTURER'S NAMES, MODELS, AND NUMBERS IS INTENDED TO ESTABLISH STYLE, QUALITY, APPEARANCE, AND USEFULNESS. PROPOSED SUBSTITUTIONS WILL REQUIRE WRITTEN APPROVAL FROM ENGINEER PRIOR TO INSTALLATION.
2. STORM AND SANITARY SEWER PIPING SHALL BE PVC PIPE AS INDICATED IN THE PLANS. PIPES WITH LESS THAN 2' OF COVER SHALL BE C900/C905 PVC, HDPE OR DUCTILE IRON PIPE.
3. PRIVATE WATER MAINS 4-INCH DIAMETER AND LARGER SHALL BE DUCTILE IRON PIPE SCH 52 OR C900; AS INDICATED IN THE PLANS.
4. PRIVATE WATER LINES 3-INCH DIAMETER AND SMALLER SHALL BE TYPE K COPPER OR PVC; AS INDICATED IN THE PLANS.
5. CONCRETE FOR CURBS, SIDEWALK AND DRIVEWAYS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,500 PSI AT 28 DAYS.

SEPARATION STATEMENT

ALL WATER MAIN CROSSINGS SHALL CONFORM TO THE OREGON STATE HEALTH DEPARTMENT, CHAPTER 333. WATER MAINS SHALL CROSS OVER SANITARY SEWERS WITH A 18" MINIMUM CLEARANCE BETWEEN OUTSIDE DIAMETERS OF PIPE WITH ALL PIPE JOINTS EQUIDISTANT FROM CROSSING. HORIZONTAL SEPARATION BETWEEN WATER MAINS AND SANITARY SEWERS IN PARALLEL INSTALLATIONS SHALL BE 10'. MAINTAIN 12" MINIMUM VERTICAL DISTANCE FOR ALL OTHER UTILITY CROSSINGS AND 12" HORIZONTAL PARALLEL DISTANCE. IN CASES WHERE IT IS NOT POSSIBLE TO MAINTAIN THE MINIMUM 10' HORIZONTAL SEPARATION, THE WATER MAIN SHALL BE LAID ON A SEPARATE SHELF IN THE TRENCH 18" INCHES ABOVE THE SEWER.

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 10, 2021
CHRISTOPHER F. THORNTON
EXPIRES: 6/30/2024

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119 N PACIFIC HWY

WOODBURN, OR

SHEET TITLE

GENERAL NOTES

DATE:	12/13/21
DRAWN:	JS
CHECKED:	CFT

REVISIONS:

SHEET NUMBER

C0.1

JOB NUMBER: A21194.10

02/24/2023 – CONSTRUCTION DOCUMENTS

F:\2021\A21194.10 - 119 N Pacific Hwy-Woodburn\Civil Cad\Sheets\Onsite\A21194 C0.1 GENERAL NOTES.dwg - Feb. 27, 23 - 11:25 AM evans

SHEET NOTES

1. SEE C0.1 FOR GENERAL SHEET NOTES.

EASEMENT NOTE 1:

UNABLE TO FIND EXHIBIT "A" MENTIONED IN DEED VOLUME 481 PAGE 82 FOR THIS SECTION OF SEWER LINE. USED WOODBURN UTILITY MAP SECTION 35-MC21-39 TO SHOW APPROXIMATE/GENERAL LOCATION.

BOTH SEWER EASEMENTS DEEDS FOR TAX LOT 7400 AND 7300 HAVE A GENERAL STATEMENT AS FOLLOWS; "A PERMANENT EASEMENT AND RIGHT-OF-WAY OF SUCH WIDTH AS MAY BE REASONABLY NECESSARY TO ACCOMPLISH THE PURPOSE OF THIS EASEMENT AS HEREIN AFTER SET FORTH UPON, OVER, UNDER AND ACROSS THE REAL PROPERTY". THIS WOULD THEN POINT TO THE LOCATION OF THE EXISTING LINE, AND WOULD BE THE EASEMENT AS SHOWN BY THE WOODBURN UTILITIES MAPS AS SHOWN HEREON.

EASEMENT NOTE 2:

R. 3657, P. 369, PERMANENT EASEMENT FOR SIDEWALK, WATER, GAS, ELECTRIC AND COMMUNICATION SERVICE LINES, FIXTURES AND FACILITIES.

DISCLAIMER: THE BOUNDARY AS SHOWN IS PRELIMINARY. FURTHER FIELD SURVEY SEARCH FOR ADDITIONAL MONUMENTS AND REFERENCES IS ONGOING.

SURVEY FOR:	SILCO COMMERCIAL CONSTRUCTION		
LOCATION:	119 N PACIFIC HWY (SH 99E) WOODBURN, OR 97071		
NW 1/4 SECTION 17 T5S, R1W, W.M.	CITY OF WOODBURN MARION COUNTY, OREGON		
LAZER SITE / RIVERSIDE SURVEYING, LLC	CREW: TP/EG/CG REVIEW: R.J.G./M.A.T.	SCALE: 1"=20'	
2003 25TH STREET S.E. (503) 581-6362 SALEM, OREGON 97302 FAX (503) 581-0901	JOB NO.: 2021-012	SHEET	
	DATE: 06/18/2021	1 OF 1	

NORTH

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet

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119 N PACIFIC HWY

WOODBURN, OR

SHEET TITLE

EXISTING CONDITIONS PLAN

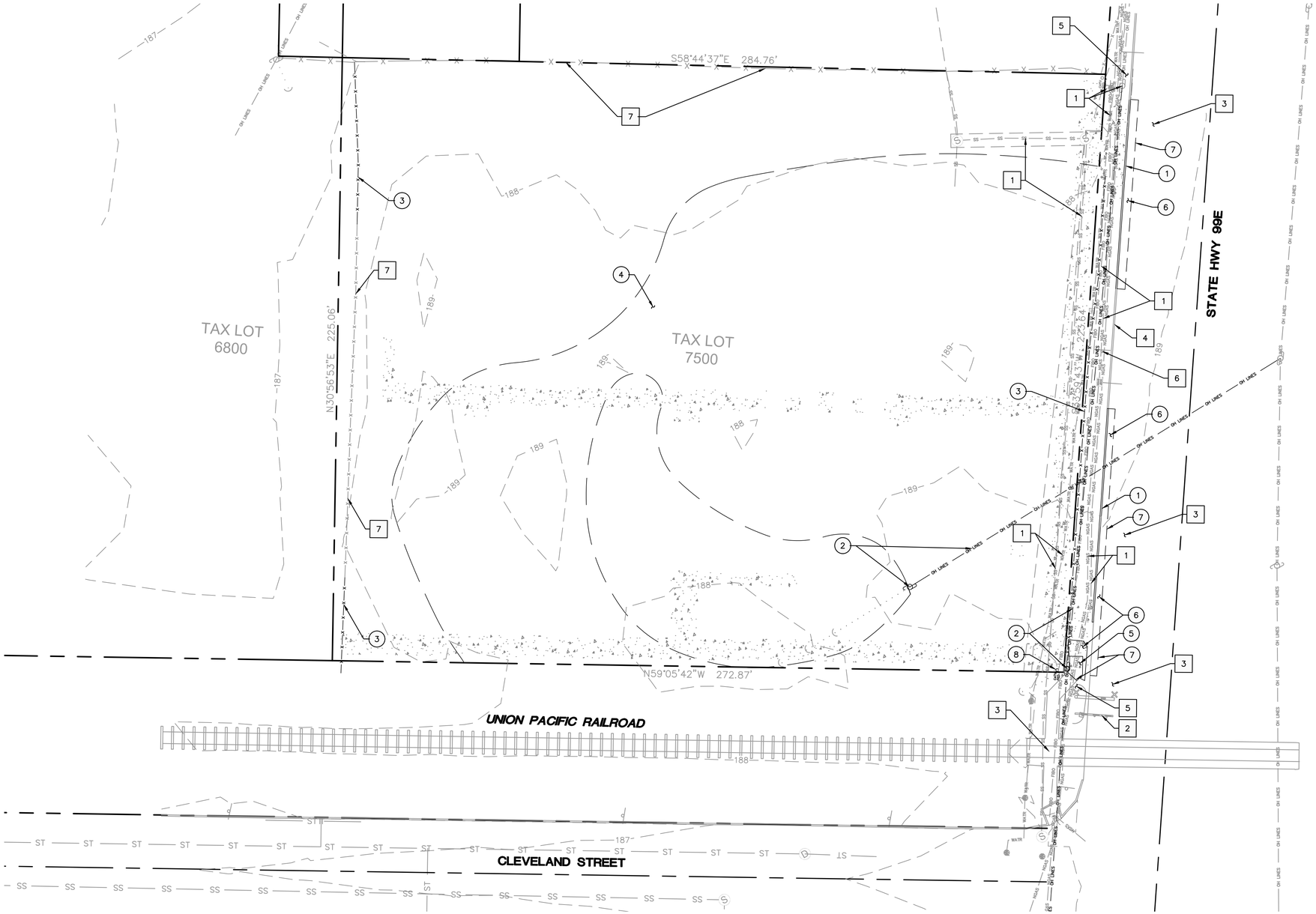
DATE:	12/13/21
DRAWN:	JS
CHECKED:	CFT
REVISIONS:	

SHEET NUMBER

C0.2

JOB NUMBER: A21194.10

02/24/2023 – CONSTRUCTION DOCUMENTS



SHEET NOTES

1. CONTRACTOR MAY STAGE WITHIN LIMITS OF DEMOLITION.
2. REMOVE ALL SITE COMPONENTS AND RECYCLE COMPONENTS AS REQUIRED IN THE SPECIFICATIONS.
3. ALL TRADE LICENSES AND PERMITS NECESSARY FOR THE PROCUREMENT AND COMPLETION OF THE WORK SHALL BE SECURED BY THE CONTRACTOR PRIOR TO COMMENCING DEMOLITION.
4. THE CONTRACTOR SHALL PRESERVE AND PROTECT FROM DAMAGE ALL EXISTING RIGHT-OF-WAY SURVEY MONUMENTATION DURING DEMOLITION. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING AND PAYING FOR THE REPLACEMENT BY A LICENSED SURVEYOR OF ANY DAMAGED OR REMOVED MONUMENTS.
5. PROTECT ALL ITEMS ON ADJACENT PROPERTIES AND IN THE RIGHT OF WAY INCLUDING BUT NOT LIMITED TO SIGNAL EQUIPMENT, PARKING METERS, SIDEWALKS, STREET TREES, STREET LIGHTS, CURBS, PAVEMENT AND SIGNS. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING ANY DAMAGED ITEMS TO ORIGINAL CONDITION.
6. PROTECT STRUCTURES, UTILITIES, SIDEWALKS, AND OTHER FACILITIES IMMEDIATELY ADJACENT TO EXCAVATIONS FROM DAMAGES CAUSED BY SETTLEMENT, LATERAL MOVEMENT, UNDERMINING, WASHOUT AND OTHER HAZARDS.
7. SAWCUT STRAIGHT LINES IN SIDEWALK, AS NECESSARY.
8. CONTRACTOR IS RESPONSIBLE TO CONTROL DUST AND MUD DURING THE DEMOLITION PERIOD, AND DURING TRANSPORTATION OF DEMOLITION DEBRIS. ALL STREET SURFACES OUTSIDE THE CONSTRUCTION ZONE MUST BE KEPT CLEAN.
9. PROTECT ALL EXISTING UTILITY STRUCTURES AND UNDERGROUND MAINS TO REMAIN.
10. PROTECT ALL EXISTING VEGETATION TO REMAIN.

[X] PROTECTION NOTES

1. PROTECT EXISTING UTILITY
2. PROTECT EXISTING TRAFFIC SIGNAL
3. PROTECT EXISTING ASPHALT
4. PROTECT EXISTING CURB
5. PROTECT EXISTING SIDEWALK
6. PROTECT EXISTING SPEED LIMIT SIGN
7. PROTECT EXISTING FENCE

(X) DEMOLITION NOTES

1. REMOVE EXISTING CURB
2. REMOVE AND RELOCATE EXISTING POWER POLE AND CONNECTED OVERHEAD LINES. REMOVE AND RELOCATE EXISTING DOWN GUY AS NEEDED. CONTRACTOR TO COORDINATE WITH POWER COMPANY.
3. REMOVE EXISTING FENCE
4. REMOVE EXISTING GRAVEL
5. REMOVE EXISTING SIDEWALK
6. REMOVE EXISTING ASPHALT
7. SAWCUT LINE
8. REMOVE AND RELOCATE EXISTING CATV PEDESTAL. CONTRACTOR TO COORDINATE WITH COMM. COMPANY.

NORTH

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet

02/24/2023 – CONSTRUCTION DOCUMENTS

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 10, 2012
CHRISTOPHER F. THORNTON
EXPIRES: 6/30/2024

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119 N PACIFIC HWY

WOODBURN, OR

SHEET TITLE

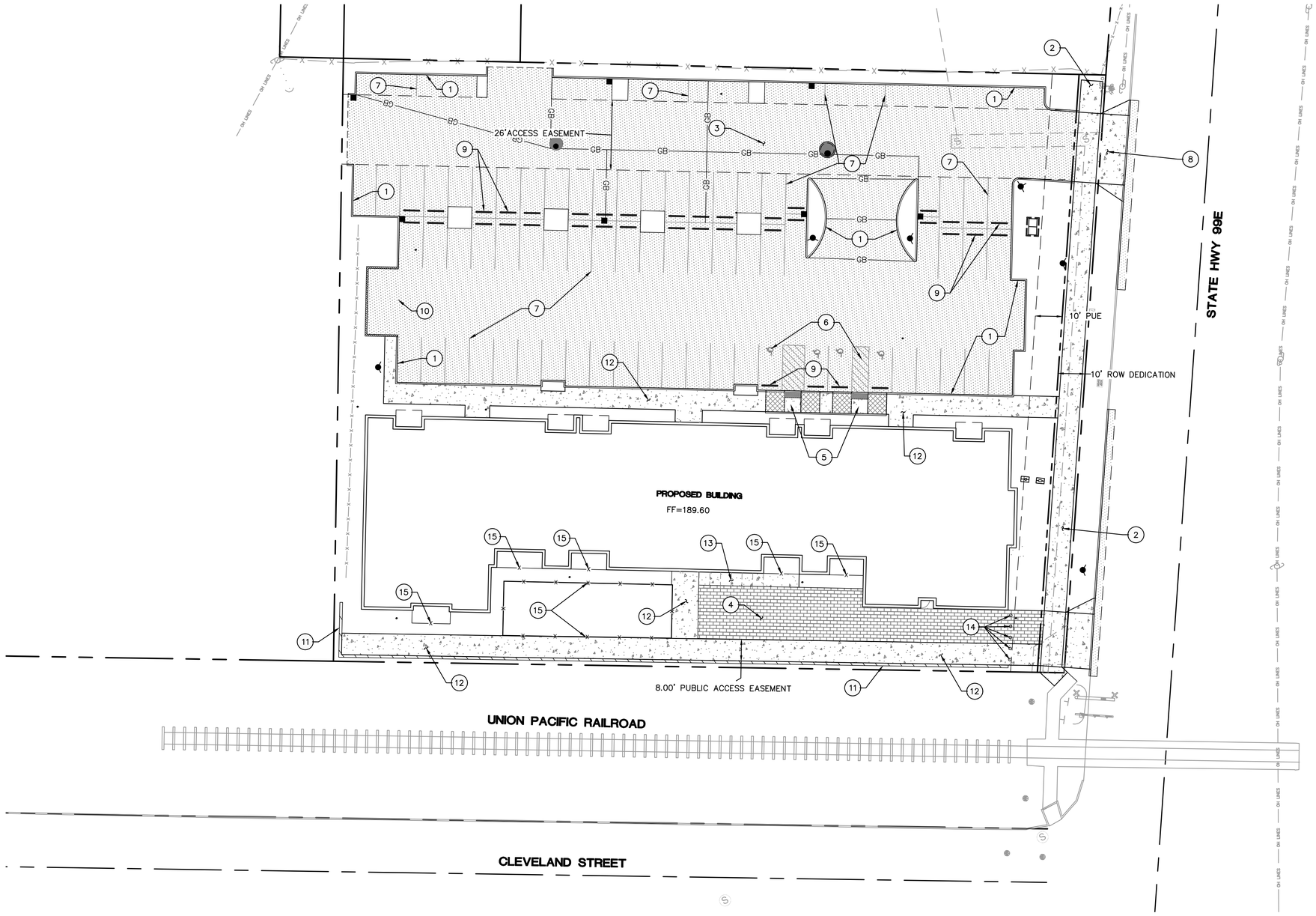
DEMOLITION PLAN

DATE:	12/13/21
DRAWN:	JS
CHECKED:	CFT
REVISIONS:	

SHEET NUMBER

C0.3

JOB NUMBER: A21194.10



SHEET NOTES

1. SEE SHEET C0.1 FOR GENERAL SHEET NOTES.
2. SEE ARCHITECTURAL PLANS FOR ADDITIONAL SITE INFORMATION.
3. THE CONTRACTOR SHALL HAVE A FULL SET OF THE CURRENT APPROVED CONSTRUCTION DOCUMENTS INCLUDING ADDENDA ON THE PROJECT SITE AT ALL TIMES.
4. THE CONTRACTOR SHALL KEEP THE ENGINEER AND JURISDICTION INFORMED OF CONSTRUCTION PROGRESS TO FACILITATE SITE OBSERVATIONS AT REQUIRED INTERVALS. 24-HOUR NOTICE IS REQUIRED.

(X) CONSTRUCTION NOTES

1. INSTALL CURB PER DETAIL 1/C4.0
2. INSTALL SIDEWALK PER CITY OF WOODBURN DETAIL 4150-8/C4.0
3. INSTALL ASPHALT SURFACE PER DETAIL 2/C4.0
4. INSTALL UNIT PAVER SURFACE, DESIGN BY OTHERS
5. INSTALL ADA RAMP TYPE 5 PER DETAIL 6/C4.0
6. INSTALL ADA STRIPING PER DETAIL 3/C4.0
7. INSTALL STRIPING, SEE ARCHITECTURAL PLANS FOR DETAILS
8. INSTALL DRIVEWAY PER DETAIL 4150-1/C4.0
9. INSTALL WHEELSTOP PER DETAIL 5/C4.0
10. INSTALL TRASH ENCLOSURE, DESIGN BY OTHERS
11. INSTALL RETAINING WALL, DESIGN BY OTHERS
12. INSTALL SIDEWALK PER DETAIL 7/C4.0
13. INSTALL BIKE PARKING. SEE ARCHITECTURAL PLANS FOR MORE INFORMATION.
14. INSTALL REMOVABLE BOLLARDS PER DETAIL 2/C4.2
15. INSTALL FENCE. SEE ARCHITECTURAL PLANS FOR MORE INFORMATION.

LEGEND

- PROPERTY LINE
- CONCRETE SIDEWALK SURFACING
- ASPHALT SURFACING
- EASEMENT BOUNDARY

NORTH

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet

02/24/2023 – CONSTRUCTION DOCUMENTS

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119 N PACIFIC HWY

WOODBURN, OR

SHEET TITLE

HARDSCAPE PLAN

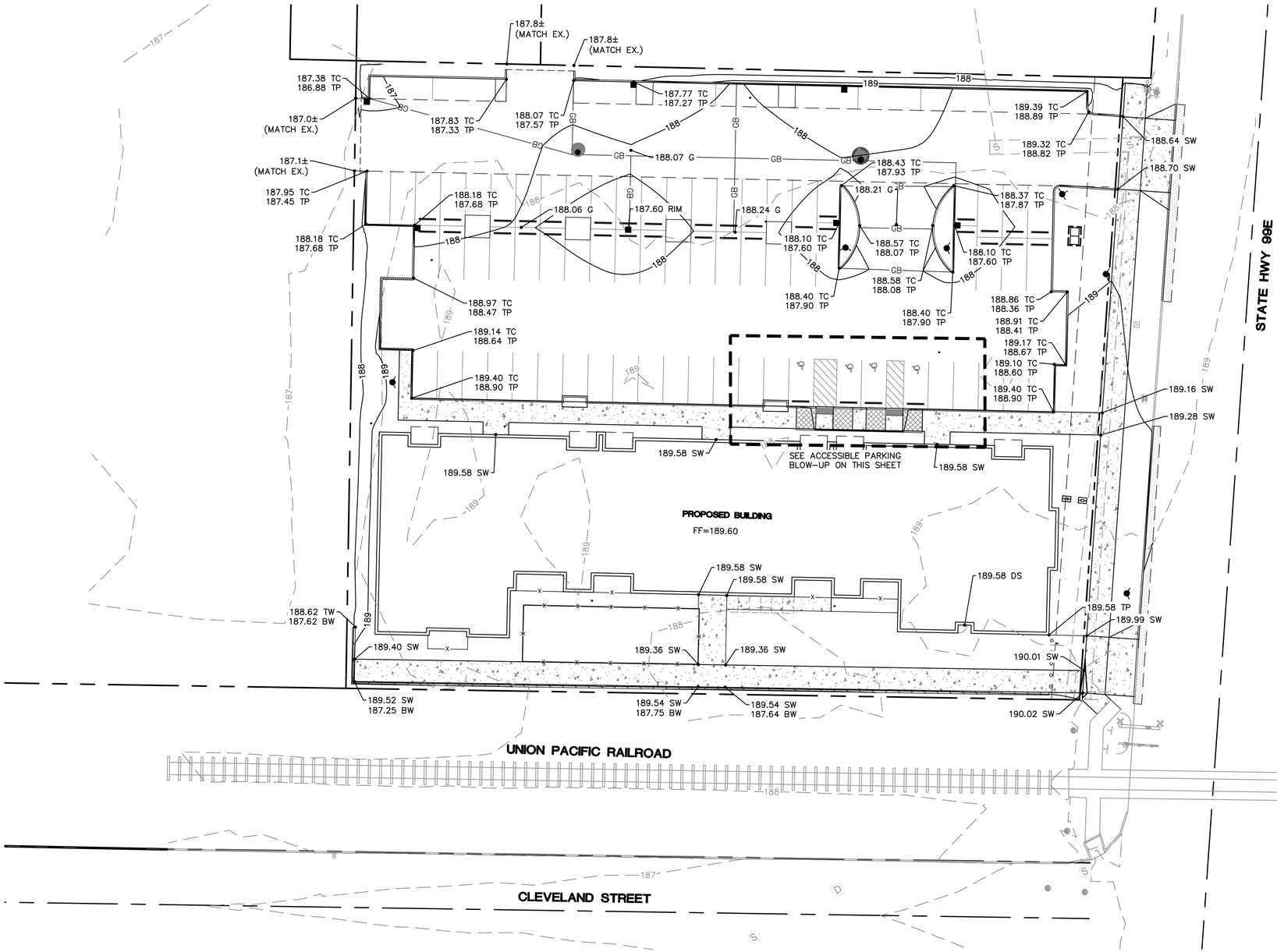
DATE:	12/13/21
DRAWN:	JS
CHECKED:	CFT

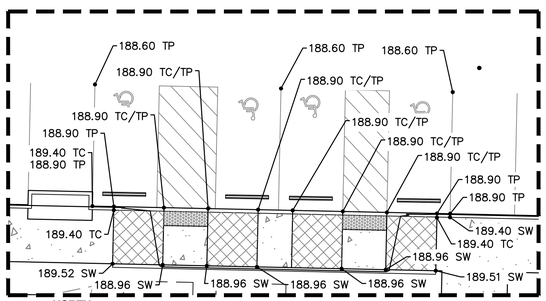
REVISIONS:

SHEET NUMBER

C1.0

JOB NUMBER: A21194.10





NORTH

ACCESSIBLE PARKING BLOW-UP

SCALE: 1" = 10'

SHEET NOTES

1. SEE SHEET C0.1 FOR GENERAL SHEET NOTES.
2. CURB HEIGHTS ARE 6" UNLESS NOTED OTHERWISE.
3. LANDINGS ON ACCESSIBLE ROUTES SHALL NOT EXCEED 2% IN ANY DIRECTION.
4. ALL ACCESSIBLE ROUTES SHALL COMPLY WITH CURRENT ADA ACCESSIBILITY GUIDELINES FOR BUILDING AND FACILITIES (ADAAG).
5. ALL WALKWAYS FROM ACCESSIBLE UNITS ARE DESIGNED TO NOT REQUIRE HANDRAILS. THEREFORE, RAMPS WITH SLOPES STEEPER THAN 5.0% AND LESS THAN 8.33% SHALL NOT EXCEED 0.5' RISE OR 6.0' LENGTH.
6. FINISH GRADES ARE TO BE BROUGHT TO WITHIN 0.08 FT IN 10 FT OF THE GRADES SHOWN AT SUBGRADE AND TO WITHIN 0.03 FT IN 10 FT AT FINISH GRADE. CONTRACTOR TO ALLOW FOR PLACEMENT OF REQUIRED TOPSOIL IN ROUGH GRADING.
7. GRADING ELEVATIONS AS SHOWN ON SITE AND LANDSCAPE PLANS ARE FINISHED GRADE WHICH INCLUDES SUBGRADE SOIL, TOPSOIL, SOIL AMENDMENTS, ROCKERY AND RUNOFF PROTECTION CONTRACTOR IS RESPONSIBLE TO COORDINATE GRADING WITH BOTH EXCAVATOR AND LANDSCAPE CONTRACTOR.

GRADING LABEL LEGEND

CALLOUT — DESCRIPTION

XX.XX — SPOT ELEVATION

XX — DESCRIPTION LISTED BELOW.

BS	BOTTOM OF STAIRS
BW	FINISHED GRADE AT BOTTOM OF WALL
DS	DOOR SILL
EX	EXISTING GRADE
FF	FINISHED FLOOR ELEVATION
FG	FINISH GRADE
G	GROUND
SW	SIDEWALK
TC	TOP OF CURB
TP	TOP OF PAVEMENT
TS	TOP OF STAIRS
TW	FINISHED GRADE AT TOP OF WALL

LEGEND

EXISTING CONTOUR MINOR — 102

EXISTING CONTOUR MAJOR — 100

PROPOSED CONTOUR MINOR — 102

PROPOSED CONTOUR MAJOR — **100**

GRADE BREAK — GB — GB

NORTH

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

1 inch = 20 feet

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 10, 2012
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EXPIRES: 6/30/2024

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119 N PACIFIC HWY

WOODBURN, OR

SHEET TITLE

GRADING PLAN

DATE: 12/13/21
DRAWN: JS
CHECKED: CFT
REVISIONS:

SHEET NUMBER

C2.0

JOB NUMBER: A21194.10

02/24/2023 – CONSTRUCTION DOCUMENTS

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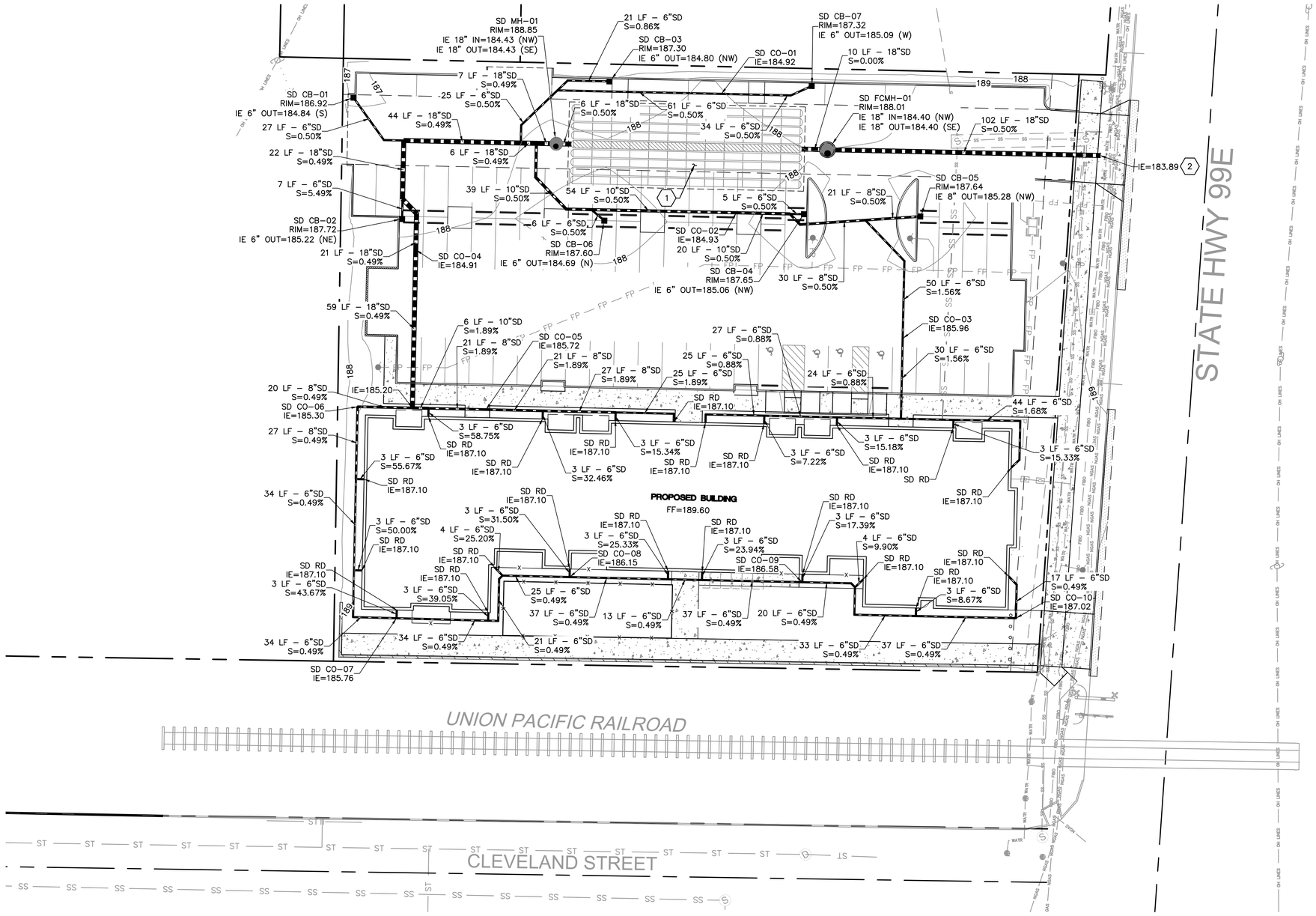

SHEET NOTES

1. SEE SHEET C0.1 FOR GENERAL SHEET NOTES.
2. STRUCTURES HORIZONTAL LOCATIONS AND PIPE INVERTS ARE BASED ON THE CENTER OF THE STRUCTURE.
3. PIPE BEDDING AND BACKFILL UTILITIES SHALL BE DONE PER DETAIL 1/C4.1.
4. INSTALL THRUST BLOCKS ON FIRE AND WATER LINES PER DETAIL 2/C4.1.
5. ALL SANITARY PIPING SHALL BE PVC 3034 OR APPROVED EQUAL UNLESS NOTED OTHERWISE.
6. THIS PLAN IS GENERALLY DIAGRAMMATIC. IT DOES NOT SHOW EVERY JOINT, BEND, FITTING, OR ACCESSORY REQUIRED FOR CONSTRUCTION.
7. CLEAN OUTS SHALL BE INSTALLED IN CONFORMANCE WITH UPC CHAPTER SEVEN, SECTION 707 AND SECTION 719. THIS PLAN MAY NOT SHOW ALL REQUIRED CLEAN OUTS.
8. DOMESTIC WATER AND FIRE LINES AND ACCESSORIES BETWEEN THE WATER METER AND THE BUILDING SHALL BE INSTALLED BY A LICENSED PLUMBER EMPLOYED BY A LICENSED PLUMBING CONTRACTOR.
9. UTILITIES WITHIN FIVE FEET OF A BUILDING SHALL BE CONSTRUCTED OF MATERIALS APPROVED FOR INTERIOR USE AS DESCRIBED IN THE CURRENT EDITION OF THE UPC.
10. INLETS AND OUTLETS TO ON-SITE MANHOLES SHALL HAVE FLEXIBLE CONNECTION NO CLOSER THAN 12" AND NO FARTHER THAN 36" FROM THE MANHOLE.
11. CONTRACTOR TO VERIFY SANITARY AND WATER SIZING AND INVERTS WITH APPROVED PLUMBING PLANS PRIOR TO ORDERING MATERIALS OR BEGINNING CONSTRUCTION OF SAID UTILITIES.
12. ALL STORM AND SANITARY FITTINGS TO BE ECCENTRIC FITTINGS UNLESS OTHERWISE NOTED.

LABEL LEGEND

PIPE LABELS

XXLF - XX" XX ← UTILITY TYPE (UTILITY LENGTH; UTILITY SIZE)

S=X.XX% ← SLOPE (WHERE APPLICABLE)

STRUCTURE LABELS

XX XX-XX ← ID NUMBER (WHERE APPLICABLE); UTILITY TYPE (FP=FIRE PROTECTION, S=SANITARY, SD=STORM DRAINAGE, W=WATER); STRUCTURE TYPE (SEE BELOW)

RIM=XX.XX ← STRUCTURE INFO (WHERE APPLICABLE)

STRUCTURE TYPES

TYPE	DESCRIPTION
CB	CATCH BASIN PER DETAIL 3/C4.1
CO	CLEANOUT PER DETAIL 3/C4.2
FCMH	FLOW CONTROL MANHOLE PER DETAIL 8/C4.1
MH	MAINTENANCE MANHOLE PER DETAIL 7/C4.1
RD	ROOF DRAIN CONNECTION - REFER TO PLUMBING PLANS

LEGEND

- SANITARY SEWER LINE — SS — SS —
- WATER LINE — W — W — W —
- FIRE LINE — FP — FP — FP — FP —
- FDC LINE — FDC — FDC — FDC —
- STORM LINE

(X) STORM NOTES

1 INSTALL UNDERGROUND STORM WATER DETENTION FACILITY. (108) SC-310 STORMTECH CHAMBERS WITHIN A ROCK SECTION THAT HAS A FOOTPRINT OF 2,774 SF PER DETAILS ON SHEET C4.3. WRAP ENTIRE ROCK SECTION IN GEOSYNTHETIC FABRIC.

2 CONNECT TO EXISTING STORM STUB PER CITY OF WOODBURN GIS. CONTRACTOR TO LOCATE EXISTING STORM LINE PRIOR CONSTRUCTION AND NOTIFY ENGINEER OF FINDINGS. INVERT SHOWN IS APPROXIMATE.

NORTH

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 10, 2012
CHRISTOPHER F. THORNTON
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119 N PACIFIC HWY

WOODBURN, OR

SHEET TITLE

STORMWATER PLAN

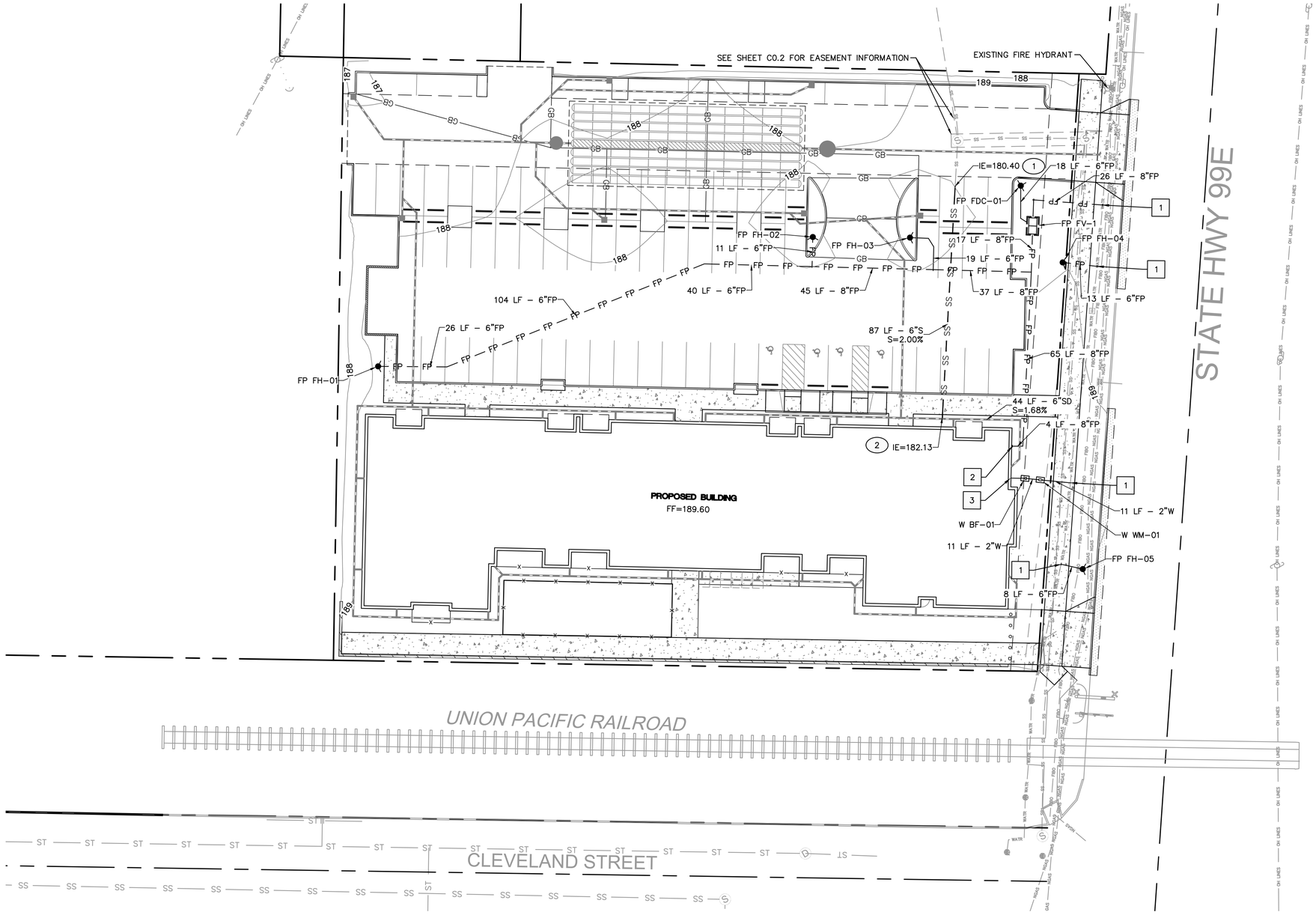
DATE: 12/13/21
DRAWN: JS
CHECKED: CFT
REVISIONS:

SHEET NUMBER

C3.0

JOB NUMBER: A21194.10

02/24/2023 - CONSTRUCTION DOCUMENTS



SHEET NOTES

1. SEE SHEET C0.1 FOR GENERAL SHEET NOTES.
2. STRUCTURES HORIZONTAL LOCATIONS AND PIPE INVERTS ARE BASED ON THE CENTER OF THE STRUCTURE.
3. PIPE BEDDING AND BACKFILL UTILITIES SHALL BE DONE PER DETAIL 1/C4.1.
4. INSTALL THRUST BLOCKS ON FIRE AND WATER LINES PER DETAIL 2/C4.1.
5. ALL SANITARY PIPING SHALL BE PVC 3034 OR APPROVED EQUAL UNLESS NOTED OTHERWISE.
6. THIS PLAN IS GENERALLY DIAGRAMMATIC. IT DOES NOT SHOW EVERY JOINT, BEND, FITTING, OR ACCESSORY REQUIRED FOR CONSTRUCTION.
7. CLEAN OUTS SHALL BE INSTALLED IN CONFORMANCE WITH UPC CHAPTER SEVEN, SECTION 707 AND SECTION 719. THIS PLAN MAY NOT SHOW ALL REQUIRED CLEAN OUTS.
8. DOMESTIC WATER AND FIRE LINES AND ACCESSORIES BETWEEN THE WATER METER AND THE BUILDING SHALL BE INSTALLED BY A LICENSED PLUMBER EMPLOYED BY A LICENSED PLUMBING CONTRACTOR.
9. UTILITIES WITHIN FIVE FEET OF A BUILDING SHALL BE CONSTRUCTED OF MATERIALS APPROVED FOR INTERIOR USE AS DESCRIBED IN THE CURRENT EDITION OF THE UPC.
10. INLETS AND OUTLETS TO ON-SITE MANHOLES SHALL HAVE FLEXIBLE CONNECTION NO CLOSER THAN 12" AND NO FARTHER THAN 36" FROM THE MANHOLE.
11. CONTRACTOR TO VERIFY SANITARY AND WATER SIZING AND INVERTS WITH APPROVED PLUMBING PLANS PRIOR TO ORDERING MATERIALS OR BEGINNING CONSTRUCTION OF SAID UTILITIES.
12. ALL STORM AND SANITARY FITTINGS TO BE ECCENTRIC FITTINGS UNLESS OTHERWISE NOTED.

LABEL LEGEND

PIPE LABELS

XXLF – XX" XX ← UTILITY TYPE (UTILITY LENGTH, UTILITY SIZE)

S=X.XX% ← SLOPE (WHERE APPLICABLE)

STRUCTURE LABELS

XX XX–XX ← ID NUMBER (WHERE APPLICABLE) (UTILITY TYPE (FP=FIRE PROTECTION, S=SANITARY, SD=STORM DRAINAGE, W=WATER); STRUCTURE TYPE (SEE BELOW))

RIM=XX.XX ← STRUCTURE INFO (WHERE APPLICABLE)

STRUCTURE TYPES

TYPE	DESCRIPTION
BF	BACKFLOW PREVENTION PER DETAIL 1/C4.2
FDC	FIRE DEPARTMENT CONNECTION PER DETAIL 5/C4.1
FH	FIRE HYDRANT PER DETAIL 5070-1/C4.2
FV	FIRE SERVICE VAULT PER DETAIL 4/C4.1
WM	WATER METER PER DETAILS 5000-1 & 5000-3/C4.2

LEGEND

SANITARY SEWER LINE	SS SS
WATER LINE	W W W
FIRE LINE	FP FP FP FP
FDC LINE	FDC FDC FDC
STORM LINE	

[X] WATER NOTES

1 WET TAP EXISTING WATER MAIN
2 CONNECT FIRE PROTECTION TO BUILDING
3 CONNECT DOMESTIC WATER TO BUILDING

(X) SANITARY NOTES

1 CONNECT TO EXISTING SANITARY STUB
2 CONNECT TO BUILDING

NORTH

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 feet

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 10, 2012
CHRISTOPHER F. THORNTON
EXPIRES: 6/30/2024

AAI engineering, inc.
ENGINEERING
4975 SW Griffith Drive | Suite 300 | Beaverton, OR | 97005
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119 N PACIFIC HWY

WOODBURN, OR

SHEET TITLE

WATER AND SANITARY PLAN

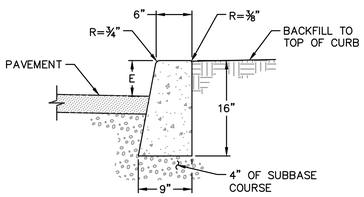
DATE: 12/13/21
DRAWN: JS
CHECKED: CFT
REVISIONS:

SHEET NUMBER

C3.1

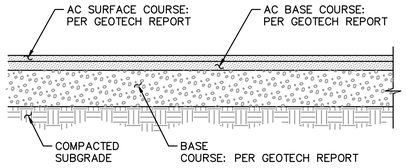
JOB NUMBER: A21194.10

02/24/2023 – CONSTRUCTION DOCUMENTS

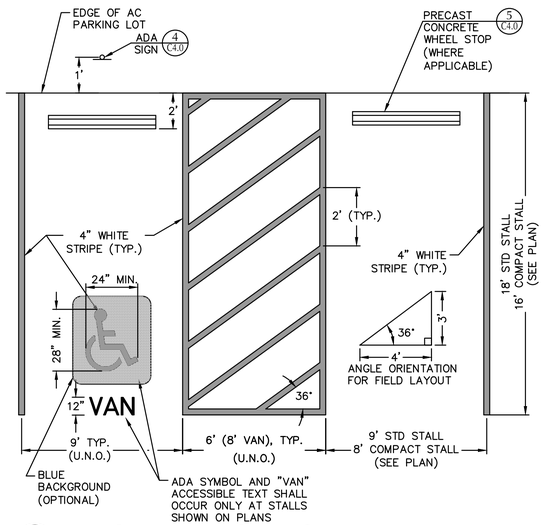


NOTES:
1. CURB EXPOSURE 'E' = 6", TYP. VARY AS SHOWN ON PLANS OR AS DIRECTED.
2. CONSTRUCT CONTRACTION JOINTS AT 15' MAX. SPACING AND AT RAMPS. CONSTRUCT EXPANSION JOINTS AT 200' MAX SPACING AT POINTS OF TANGENCY AND AT ENDS OF EACH DRIVEWAY.
3. TOPS OF ALL CURBS SHALL SLOPE TOWARD THE ROADWAY AT 2%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

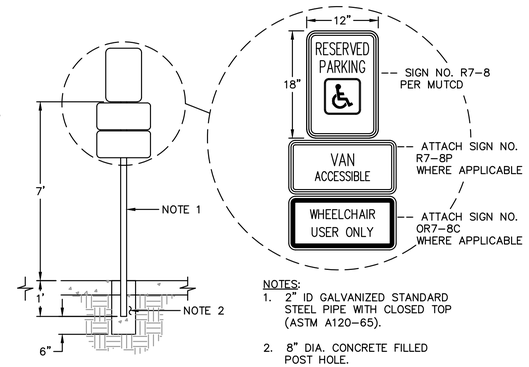
1 CONCRETE CURB - STANDARD
SCALE: NTS



2 ASPHALT PAVEMENT SECTION
SCALE: NTS

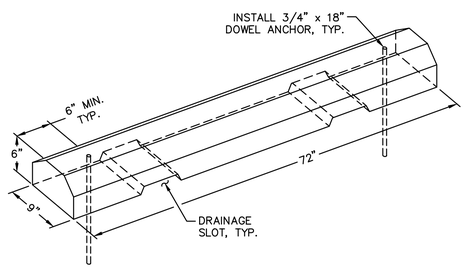


3 TYPICAL PARKING LAYOUT
SCALE: NTS



NOTES:
1. 2" ID GALVANIZED STANDARD STEEL PIPE WITH CLOSED TOP (ASTM A120-65).
2. 8" DIA. CONCRETE FILLED POST HOLE.

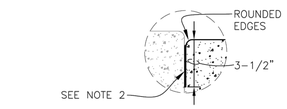
4 ADA PARKING SIGN - TYPE 2
SCALE: NTS



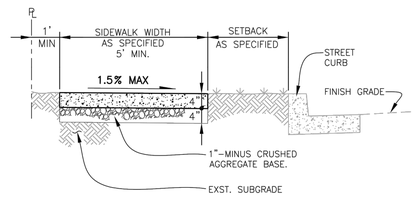
NOTES:
1. DIMENSIONS ARE NOMINAL AND MAY VARY TO CONFORM TO MANUFACTURER'S PRODUCTS APPROVED BY ENGINEER.

5 PRECAST CONCRETE WHEEL STOP
SCALE: NTS

CURBLINE SIDEWALK



EXPANSION JOINT



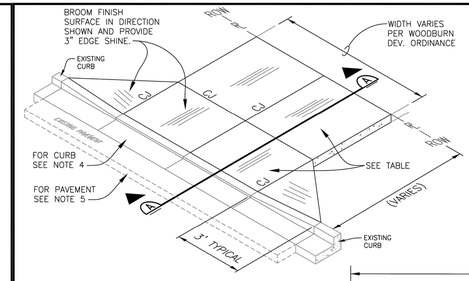
PROPERTY LINE SIDEWALK

NOTES:
1. MATERIAL – 3500 PSI CONCRETE AT 28 DAYS. BROOM FINISH SURFACE & PROVIDE 3" EDGE SHINE. REFERENCE TECHNICAL SPEC. SECTION 4150.
2. EXPANSION JOINTS (EJ) SHALL BE 1/2" AC IMPREGNATED JOINT FILLER AT ALL DISSIMILAR VERTICAL SURFACES.
3. TRANSVERSE CONSTRUCTION JOINTS (CJ) 1-1/2" DEEP OR 1/3 OF THE THICKNESS (T) @ 5' INTERVALS.
4. FOR SIDEWALK AT DRIVEWAYS SEE DETAILS 4150-3 AND 4150-4.

WOODBURN OREGON Incorporated 1889
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

SIDEWALKS

REV: JULY 2018
SCALE: NTS
DET No. 4150-8



SECTION A

TABLE
CONCRETE/AGGREGATE BASE THICKNESS AND REINFORCEMENT.

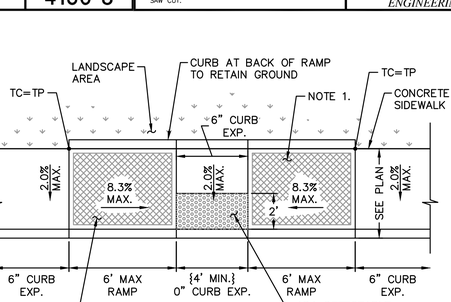
USE	CONC.	1"-MINUS CRUSHED AGGREGATE	REBAR
SINGLE FAMILY RESIDENTIAL	6"	4"	NONE
ALL OTHER	8"	6"	No.4 @ 12"O.C. EACH WAY

NOTES:
1. REFERENCE TECHNICAL SPEC. SECTION 4150.
2. EXPANSION JOINTS (EJ) SHALL BE 1/2" AC IMPREGNATED JOINT FILLER AT ALL DISSIMILAR VERTICAL SURFACES.
3. MATERIAL – 3500 PSI CONCRETE AT 28 DAYS.
4. CURBS WITH CRACKING, SETTLEMENT, DRAINAGE PROBLEMS OR SIGNIFICANT DETERIORATION SHALL BE REPLACED UNLESS APPROVED BY ENGINEERING DEPARTMENT.
5. ASPHALT STREETS SHALL BE REPAIRED TO FIX ANY OVERCUTS OR DAMAGE CAUSED BY PLACING CURB FORMS. REPAIR SHALL BE A MINIMUM OF 1FT WIDE AND THE EXTEND THE ENTIRE LENGTH OF THE CURB REPLACEMENT AREA. ALL LIMITS SHALL BE CLEANLY SAW CUT.

WOODBURN OREGON Incorporated 1889
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

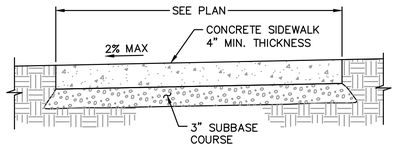
DRIVEWAY APPROACH

REV: AUG. 2020
SCALE: NTS
DET No. 4150-1



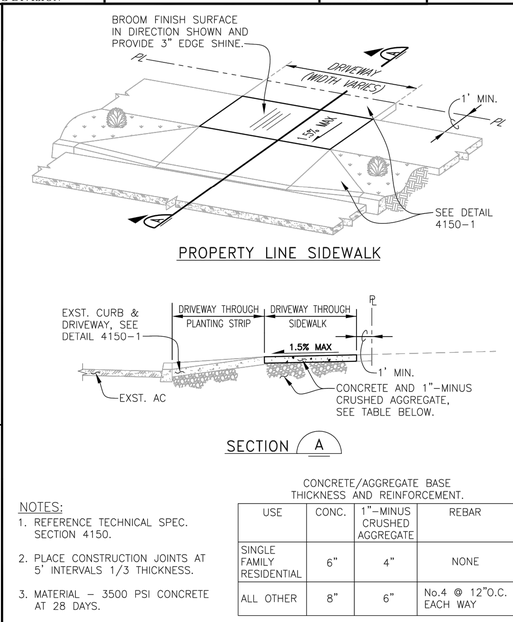
NOTES:
1. PROVIDE RAMP TEXTURING WITH AN EXPANDED METAL GRATE PLACED ON AND REMOVED FROM WET CONCRETE TO LEAVE A DIAMOND PATTERN. EACH DIAMOND SHALL BE 1¼" LONG BY ½" WIDE WITH THE LONG SECTION AXIS ORIENTED PERPENDICULAR TO THE CURB. THE GROOVES SHALL BE ⅛" DEEP BY ¼" WIDE.

6 CURB RAMP - TYPE 5
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.
2. CONCRETE SHALL BE 3000 P.S.I AT 28 DAYS, 6 SACK MIX, SLUMP RANGE OF 1-1/2" TO 3".
3. PANELS SHALL BE 5 FEET LONG.
4. EXPANSION JOINTS TO BE PLACED AT SIDES OF DRIVEWAY APPROACHES, UTILITY VAULTS, WHEELCHAIR RAMPS, AND AT SPACING NOT TO EXCEED 45 FEET.
5. FOR SIDEWALKS ADJACENT TO THE CURB AND POURED AT THE SAME TIME AS THE CURB, THE JOINT BETWEEN THEM SHALL BE A TROWELED JOINT WITH A MINIMUM 1/2" RADIUS.
6. SIDEWALK SHALL HAVE A MINIMUM THICKNESS OF 6 INCHES IF MOUNTABLE CURB IS USED OR IF SIDEWALK IS INTENDED AS PORTION OF DRIVEWAY. OTHERWISE SIDEWALK SHALL HAVE A MINIMUM THICKNESS OF 4 INCHES.
7. DRAIN BLOCKOUTS IN CURBS SHALL BE EXTENDED TO BACK OF SIDEWALK WITH 3" DIA. PVC PIPE AT 2% SLOPE. CONTRACTION JOINT TO BE PLACED OVER PIPE.

7 CONCRETE SIDEWALK
SCALE: NTS



PROPERTY LINE SIDEWALK

SECTION A

NOTES:
1. REFERENCE TECHNICAL SPEC. SECTION 4150.
2. PLACE CONSTRUCTION JOINTS AT 5' INTERVALS 1/3 THICKNESS.
3. MATERIAL – 3500 PSI CONCRETE AT 28 DAYS.

CONCRETE/AGGREGATE BASE THICKNESS AND REINFORCEMENT.

USE	CONC.	1"-MINUS CRUSHED AGGREGATE	REBAR
SINGLE FAMILY RESIDENTIAL	6"	4"	NONE
ALL OTHER	8"	6"	No.4 @ 12"O.C. EACH WAY

WOODBURN OREGON Incorporated 1889
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

PROPERTY LINE SIDEWALK AT DRIVEWAY

REV: JUNE. 2018
SCALE: NTS
DET No. 4150-4

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 10, 2001
CHRISTOPHER F. THORNTON
EXPIRES: 6/30/2024

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503.620.3030 tel | 503.620.3539 fax | www.aaieng.com

119 N PACIFIC HWY
WOODBURN, OR

SHEET TITLE
DETAILS

DATE: 12/13/21
DRAWN: JS
CHECKED: CFT
REVISIONS:

SHEET NUMBER
C4.0

JOB NUMBER: A21194.10

02/24/2023 – CONSTRUCTION DOCUMENTS

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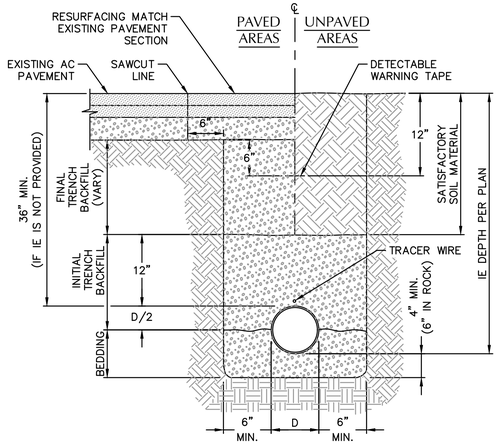
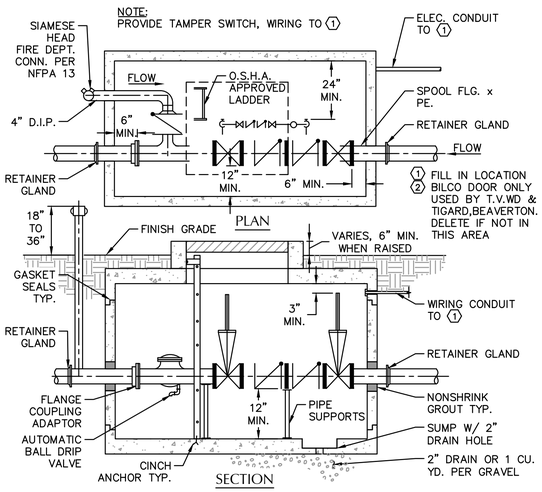


1 TYPICAL PIPE BEDDING AND BACKFILL

SCALE: NTS

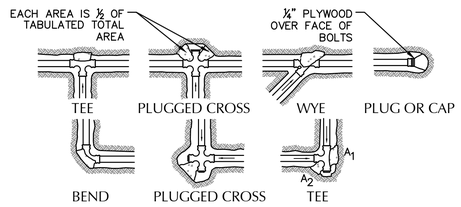


D.D.C. SIZE	UTILITY VAULT OR EQUAL	
	WITH F.D.C.	WITHOUT F.D.C.
4"	676 – WA	577 – WA
6"	687 – WA	676 – WA
8"	5106 – LA	687 – WA
10"	5106 – LA	5106 – LA

2 BILCO DOOR OR EQUAL
J – 5AL
J – 5AL
JD – 3AL
JD – 3AL

4 DOUBLE CHECK DETECTOR ASSEMBLY FIRE SERVICE VAULT W/ DRAIN TO GROUND

SCALE: NTS



1. CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
2. KEEP CONCRETE CLEAR OF JOINT AND ACCESSORIES.
3. THE REQUIRED THRUST BEARING AREAS FOR SPECIAL CONNECTIONS ARE SHOWN ENCIRCLED ON THE PLAN; e.g. (15) INDICATES 15 SQUARE FEET BEARING AREA REQUIRED.
4. IF NOT SHOWN ON PLANS REQUIRED BEARING AREAS AT FITTING SHALL BE AS INDICATED BELOW, ADJUST IF NECESSARY, TO CONFORM TO THE TEST PRESSURE(S) AND ALLOWABLE SOIL BEARING STRESS (ES) STATED IN THE SPECIAL SPECIFICATIONS.
5. BEARING AREAS AND SPECIAL BLOCKING DETAILS SHOWN ON PLANS TAKE PRECEDENCE OVER BEARING AREAS AND BLOCKING DETAILS SHOWN ON THIS STANDARD DETAIL.

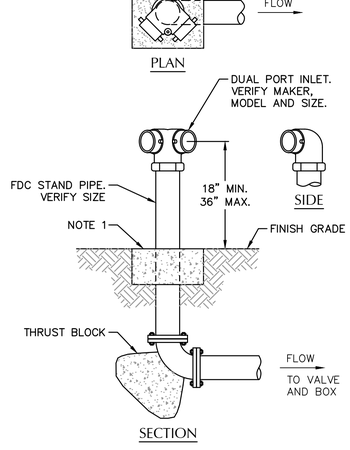
BEARING AREA OF THRUST BLOCK IN SQUARE FOOT

FITTING SIZE	TEE, WYE, PLUG, OR CAP	90° BEND PLUGGED CROSS	TEE PLUGGED ON RUN A1	TEE PLUGGED ON RUN A2	45° BEND	22½° BEND	11¼° BEND
4	1.0	1.4	1.9	1.4	1.0		
6	2.1	3.0	4.3	3.0	1.6	1.0	
8	3.8	5.3	7.6	5.4	2.9	1.5	1.0
10	5.9	8.4	11.8	8.4	4.6	2.4	1.2

NOTE:
ABOVE BEARING AREAS BASED ON TEST PRESSURE OF 150 p.s.i. AND AN ALLOWABLE SOIL BEARING STRESS OF 2000 p.s.i.. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURE AND SOIL BEARING STRESSES, USE THE FOLLOWING EQUATION: BEARING AREA = (TEST PRESSURE/150)X(2000/ SOIL BEARING STRESS)X(TABLE VALUE).

2 THRUST BLOCK

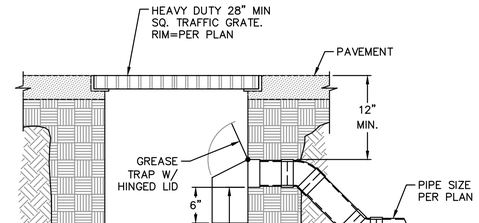
SCALE: NTS



NOTES:
1. CONCRETE ANCHOR PAD TO BE 12"x12"x6" THICK, UNLESS NOTED OTHERWISE. ELIMINATE IF INSTALLED IN CONCRETE PAVED AREA.
2. USE FLANGE OR THREADED FITTINGS.
3. CONTRACTOR SHALL PROVIDE SINGLE CHECK VALVE AND BALL DRIP VALVE IN ACCESSIBLE LOCATION INSIDE DDCV VAULT. COORDINATE WITH PLUMBING.

5 FIRE DEPARTMENT CONNECTION (FDC) DUAL PORT

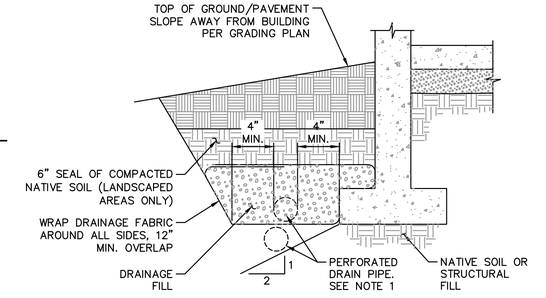
SCALE: NTS



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.

3 TRAPPED CATCH BASIN

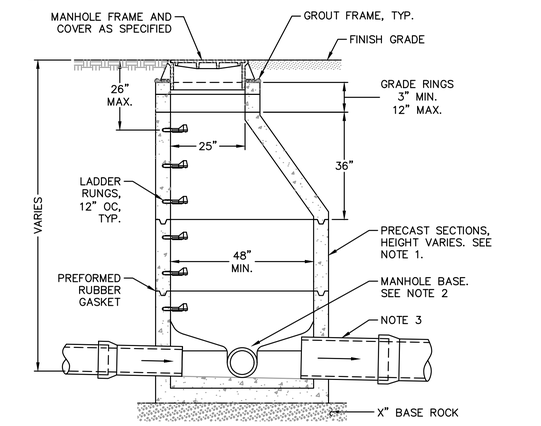
SCALE: NTS



NOTES:
1. LAY PERFORATED DRAIN PIPE ON MIN. 0.5% GRADIENT, WIDENING EXCAVATION AS REQUIRED. MAINTAIN PIPE ABOVE 2:1 SLOPE AS SHOWN.
2. CONNECT TO FOUNDATION DRAIN STUBOUT SHOWN ON PLANS.

6 PERIMETER FOUNDATION DRAIN

SCALE: NTS

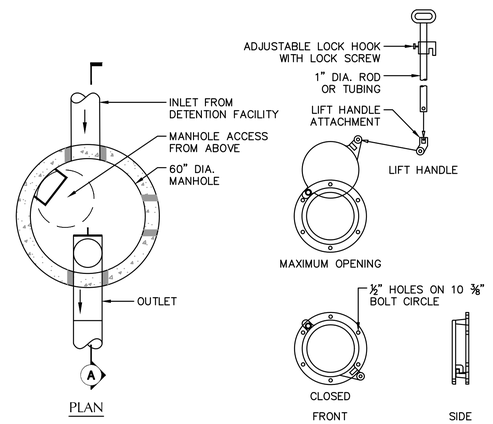


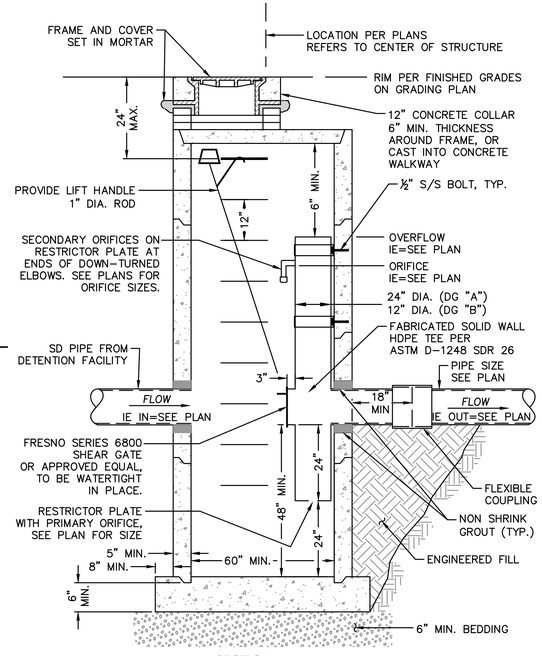
NOTES:
1. ALL PRECAST SECTIONS SHALL CONFORM TO REQUIREMENTS OF ASTM C-478.
2. MANHOLE BASE MAY BE PRECAST OR CAST IN PLACE. SEE STANDARD MANHOLE BASE DETAILS.
3. ALL CONNECTING PIPES SHALL HAVE FLEXIBLE, GASKETED AND UNRESTRAINED JOINT WITHIN 18" OF MANHOLE VAULT..

7 STANDARD MANHOLE

SCALE: NTS

FLOW CONTROL ORIFICE SIZING		
STRUCTURE	2-YR (RESTRICTOR PLATE INVERT)	EMERGENCY OVERFLOW
FCMH-01	1.6"ø @ 182.40	18"ø @ 186.52





8 FLOW CONTROL MANHOLE

SCALE: NTS

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REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 10, 2021
CHRISTOPHER F. THORNTON
EXPIRES: 6/30/2024

119 N PACIFIC HWY

WOODBURN, OR

SHEET TITLE

DETAILS

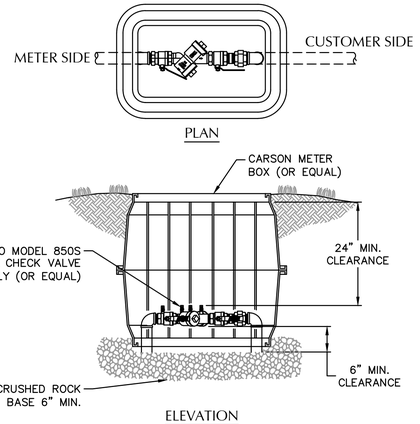
DATE:	12/13/21
DRAWN:	JS
CHECKED:	CFT
REVISIONS:	

SHEET NUMBER

C4.1

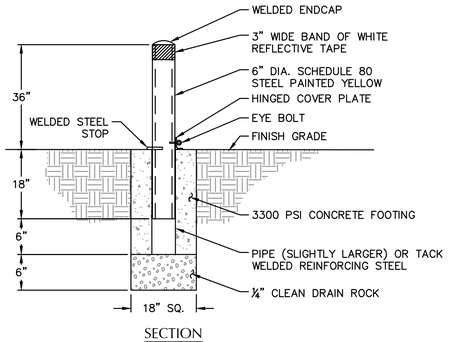
JOB NUMBER: A21194.10

02/24/2023 – CONSTRUCTION DOCUMENTS

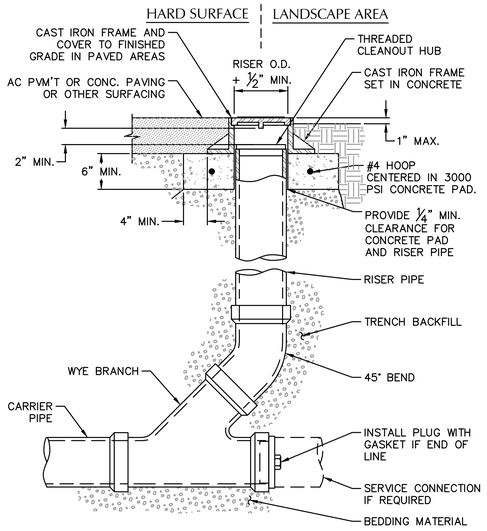


NOTE:
INSTALLATION SHOWN IS ONLY A SUGGESTION. THE DISTANCE FROM BOTTOM OF DEVICE TO FINISH GRADE, FREEZE PROTECTION, AND CLEARANCE FOR TESTING & REPAIR ARE THE MAJOR CONSIDERATIONS FOR INSTALLATION. PLUGS TO BE INSTALLED IN TEST COCKS OF BELOW GROUND INSTALLATIONS (NO DISSIMILAR METALS). IF FREEZE PROTECTION IS PROVIDED, THE 24" MIN CLEARANCE MAY BE REDUCED.

1 DOUBLE CHECK BACKFLOW ASSEMBLY
SCALE: NTS



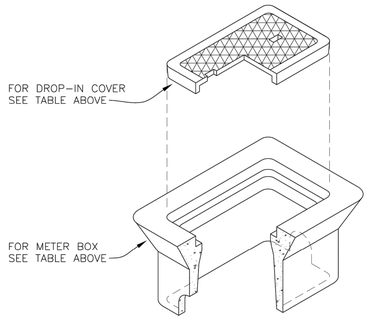
2 REMOVABLE PIPE BOLLARD
SCALE: NTS



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.

3 STANDARD CLEANOUT (COTG)
SCALE: NTS

BROOKS PRODUCTS		
	COVER	METER BOX
DIA.	MODEL NO.	
1"	No. 37-T CAST IRON COVER*	No. 37 MB-BODY*
2"	No. 65-TF STEEL COVER (FLUSH)*	No. 65 MB-BODY*
* OR APPROVED EQUAL		

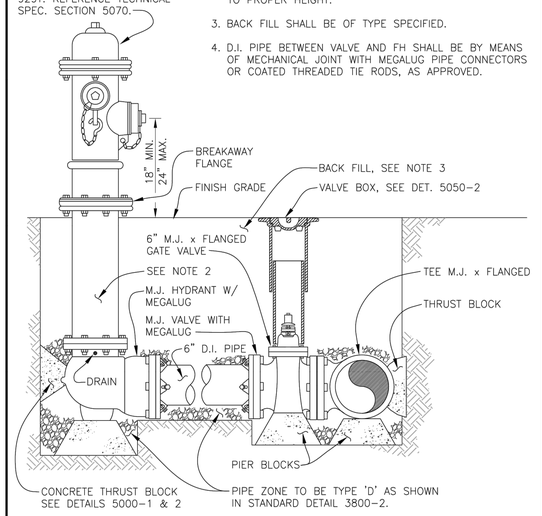


WOODBURN OREGON
Incorporated 1889
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

METER BOX

REV: FEB 2020
SCALE: NTS
DET No. 5050-1

NOTES:
1. BED PIPE WITH 1"-MINUS SO AS TO CARRY LOAD OF PIPE EVENLY WITHOUT FIXING LOAD ON PIER BLOCKS DIG OUT BELOW BED FOR PIER BLOCKS, AS DIRECTED.
2. BURY HEIGHT: 3-1/2 TO 4 FEET. IF GREATER DEPTH IS REQUIRED EXTENSIONS SHALL BE USED TO ADJUST FH TO PROPER HEIGHT.
3. BACK FILL SHALL BE OF TYPE SPECIFIED.
4. D.I. PIPE BETWEEN VALVE AND FH SHALL BE BY MEANS OF MECHANICAL JOINT WITH MEGALUG PIPE CONNECTORS OR COATED THREADED TIE RODS, AS APPROVED.

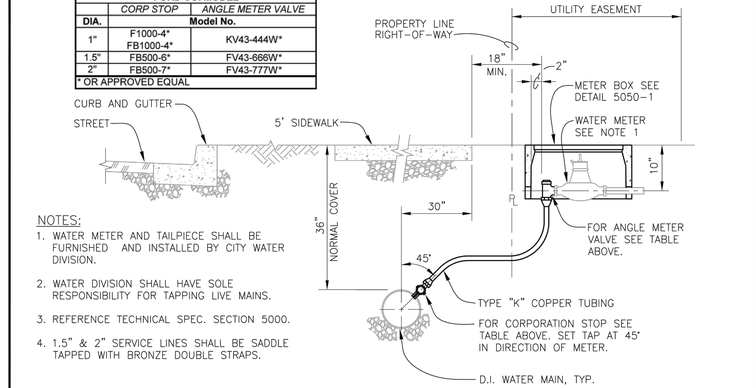


WOODBURN OREGON
Incorporated 1889
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

FIRE HYDRANT ASSEMBLY

REV: FEB. 2020
SCALE: NTS
DET No. 5070-1

FORD CO. MODEL		
	CORP STOP	ANGLE METER VALVE
DIA.	Model No.	
1"	F1000-4* FB1000-4*	KV43-444W*
1.5"	FB500-6*	FV43-666W*
2"	FB500-7*	FV43-777W*
* OR APPROVED EQUAL		



NOTES:
1. WATER METER AND TAILPIECE SHALL BE FURNISHED AND INSTALLED BY CITY WATER DIVISION.
2. WATER DIVISION SHALL HAVE SOLE RESPONSIBILITY FOR TAPPING LIVE MAINS.
3. REFERENCE TECHNICAL SPEC. SECTION 5000.
4. 1.5" & 2" SERVICE LINES SHALL BE SADDLE TAPPED WITH BRONZE DOUBLE STRAPS.

WOODBURN OREGON
Incorporated 1889
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

WATER SERVICE CONNECTION

REV: MAY 2011
SCALE: NTS
DET No. 5000-4

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 10, 2001
CHRISTOPHER F. THORNTON
EXPIRES: 6/30/2024

AAI engineering, inc.
ENGINEERING
4875 SW Griffith Drive | Suite 300 | Beaverton, OR | 97005
503.620.3030 tel | 503.620.3539 fax | www.aaieng.com

119 N PACIFIC HWY
WOODBURN, OR

SHEET TITLE
DETAILS

DATE: 12/13/21
DRAWN: JS
CHECKED: CFT
REVISIONS:

SHEET NUMBER
C4.2

JOB NUMBER: A21194.10

02/24/2023 – CONSTRUCTION DOCUMENTS

Advanced Drainage Systems, Inc.

SiteAssist™
FOR STORMTECH INSTALLATION INSTRUCTIONS VISIT OUR APP

SC-310 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH SC-310.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE OR POLYETHYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. 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 SHALL BE GREATER THAN OR EQUAL TO 400 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. 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.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2922 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-310 SYSTEM

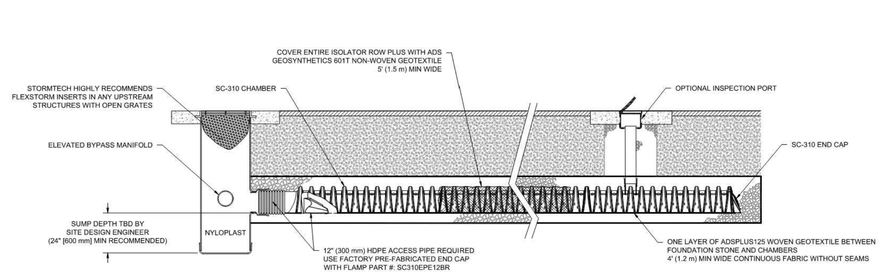
1. STORMTECH SC-310 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH SC-310 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm).
8. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
9. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

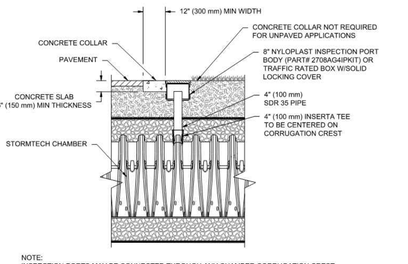
1. STORMTECH SC-310 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
2. THE USE OF CONSTRUCTION EQUIPMENT OVER SC-310 & SC-740 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.



3 SC-310 ISOLATOR ROW PLUS DETAIL



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION CREST.

4 4" PVC INSPECTION PORT DETAIL (SC SERIES CHAMBER)

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.

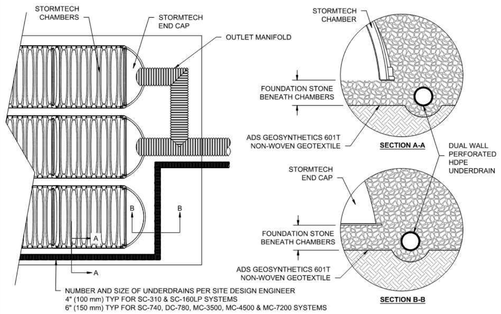
STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

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

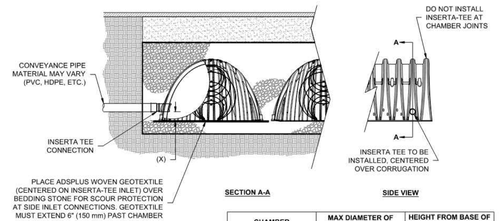
STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

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.



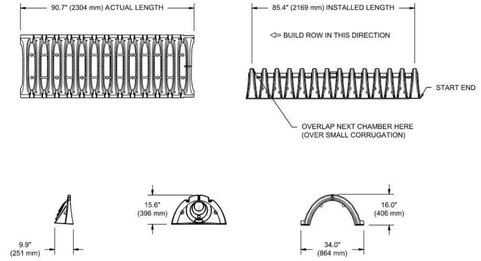
5 UNDERDRAIN DETAIL



CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 mm)	4" (100 mm)
SC-740	10" (250 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
MC-3500	12" (300 mm)	6" (150 mm)
MC-4500	12" (300 mm)	8" (200 mm)
MC-7200	12" (300 mm)	8" (200 mm)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SCH 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

NOTES:
- PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.
- CONTACT ADS ENGINEERING SERVICES IF INSERTA TEE INLET MUST BE RAISED AS NOT ALL INVERTS ARE POSSIBLE.

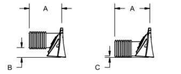
6 INSERTA-TEE SIDE INLET DETAIL



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	34.0" X 16.0" X 85.4"	(864 mm X 406 mm X 2169 mm)
CHAMBER STORAGE	14.7 CUBIC FEET	(0.42 m³)
MINIMUM INSTALLED STORAGE*	31.0 CUBIC FEET	(0.88 m³)
WEIGHT	35.0 lbs.	(16.8 kg)

*ASSUMES 6" (152 mm) ABOVE, BELOW, AND BETWEEN CHAMBERS



PRE-FAB STUB AT BOTTOM OF END CAP WITH FLAMP END WITH "BR"
PRE-FAB STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PRE-FAB STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
PRE CORED END CAPS END WITH "PC"

PART #	STUB	A	B	C
SC310EPE06T / SC310EPE06TPC	6" (150 mm)	9.6" (244 mm)	5.8" (147 mm)	---
SC310EPE06B / SC310EPE06BPC			---	0.5" (13 mm)
SC310EPE08T / SC310EPE08TPC	8" (200 mm)	11.9" (302 mm)	3.5" (89 mm)	---
SC310EPE08B / SC310EPE08BPC			---	0.6" (15 mm)
SC310EPE10T / SC310EPE10TPC	10" (250 mm)	12.7" (323 mm)	1.4" (36 mm)	---
SC310EPE10B / SC310EPE10BPC			---	0.7" (18 mm)
SC310EPE12B	12" (300 mm)	13.5" (343 mm)	---	0.9" (23 mm)
SC310EPE12BR	12" (300 mm)	13.5" (343 mm)	---	0.9" (23 mm)

ALL STUBS, EXCEPT FOR THE SC310EPE12B ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

* FOR THE SC310EPE12B THE 12" (300 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 0.25" (6 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

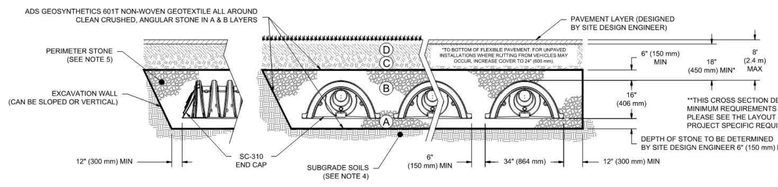
NOTE: ALL DIMENSIONS ARE NOMINAL

2 SC-310 TECHNICAL SPECIFICATIONS

ACCEPTABLE FILL MATERIALS: STORMTECH SC-310 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 18" (450 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	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	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.



NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-310 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.
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 F2922 SHALL BE GREATER THAN OR EQUAL TO 400 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-310 CROSS SECTION DETAIL

SC-310
STANDARD DETAILS

DRAWN: | DATE:
REVIEWED: | PROJECT NO:
REV: | NOT TO SCALE

StormTech® Chamber System
888.892.2694 | WWW.STORMTECH.COM

4640 TRUEMAN BLVD
HILLIARD, OH 43026

ADS Advanced Drainage Systems, Inc.

SHEET

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 10, 2015
CHRISTOPHER F. THORNTON
EXPIRES: 6/30/2024

AAI afghan associates, inc.
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PACIFIC HWY
119 N
WOODBURN, OR

SHEET TITLE
DETAILS

DATE: 12/13/21
DRAWN: JS
CHECKED: CFT
REVISIONS:

SHEET NUMBER
C4.3

JOB NUMBER: A21194.10

02/24/2023 – CONSTRUCTION DOCUMENTS

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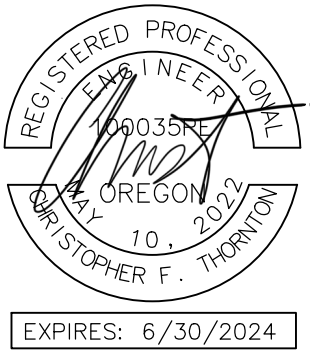
Storm
Report

AAI afghan associates, inc.
ENGINEERING

119 N Pacific Hwy

STORMWATER REPORT & CALCULATIONS

Woodburn, Oregon
97071



Revised February 24, 2023
February 08 , 2022
PROJECT NUMBER: A21152.10

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119 N Pacific Hwy

Table of Contents

Appendices

119 N Pacific Hwy

I. Project Summary

This report has been prepared to outline the existing and proposed on-site stormwater conditions for the 119 N Pacific Hwy project. The report is based off topographic survey and field observation.

The project is located at 119 N Pacific Hwy in Woodburn, Oregon. The total pre-developed site is approximately 1.38 acres. The site currently consists of an open field with gravel and dispersed vegetation, and is relatively flat.

See Appendix A – Existing Conditions

The primary purpose of this project is to develop the site for a new building with driveways, pedestrian connection and associated utilities. In addition to the site improvements, stormwater management will be provided, including conveyance and flow control.

See Appendix B – Site Plan and Appendix C – Storm Plan and Details.

II. Stormwater Design

At the time of writing, additional information regarding the existing storm connection point is forthcoming. As such, the onsite storm system has been conservatively designed with respect to the available depth to invert at the site's outfall connection point.

The proposed stormwater facilities are designed to capture, convey, and detain runoff from the proposed site improvements. No runoff from adjacent properties is anticipated to be captured by the proposed facilities. In addition, site impervious runoff will be completely managed on site and will not drain onto adjacent private properties.

The stormwater runoff from the roof area will be directed into downspouts and be conveyed to the detention system by underground piping. Stormwater runoff from pavement, parking, and sidewalk areas will sheet flow into sumped and trapped catch basins and be similarly conveyed to the onsite detention system.

Per Table 7-1 of the City of Woodburn Stormwater Drainage Master Plan, a 10-acre site needs to provided a minimum of 18,883 cubic feet of storage. The proposed site area is 1.38 acres. By proportionality, a minimum of 2,605 cubic feet of storage must be provided for this site. The use of an underground chamber storage facility is proposed to provide 3,542 cubic feet of storage. The proposed detention volume meets those required by Table 7-1. A copy of this table has been provided in Appendix D - Stormwater Calculations.

Per the City's Stormwater Drainage Master Plan Runoff Detention Requirement, flow control for the onsite detention must limit the post-development 25-year outflow to no more than the 5-year

undeveloped site peak runoff. With the use of a flow control manhole in conjunction with the proposed detention system, the site is designed to meet this requirement.

See Appendix D – Storm Calculations, Appendix E – HydroCAD Report, and Appendix F – Geotech Report

III. Calculations

HydroCAD has been used to verify detention sizing and to design the flow control orifices at the site's outfall, following the storm intensities and durations outlined in Table 7-1 of the City of Woodburn Stormwater Drainage Master Plan. Conveyance calculations have been completed using Manning's Equation for pipe flow, utilizing the appropriate ODOT IDF Curve for the lowest duration 25-year storm. A copy of the IDF curve used has been included in this report.

See Appendix D – Stormwater Calculations

IV. Operations and Maintenance

See Appendix E – Operations and Maintenance for O&M requirements.

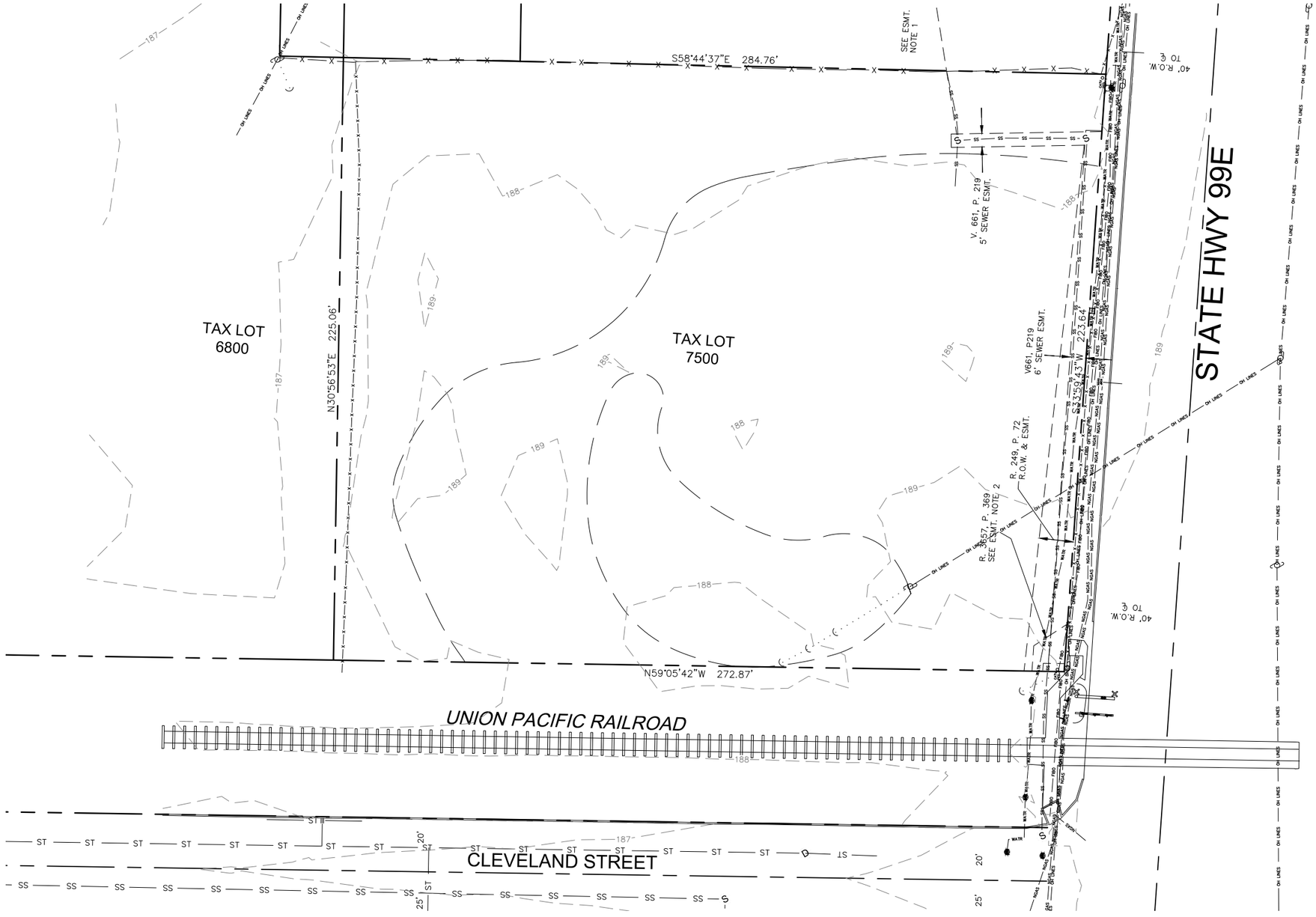
V. Engineering Conclusion

Based on the requirements of the City of Woodburn Management Manual, the proposed site facilities will be adequately designed to manage the proposed development.

119 N Pacific Hwy

Appendix A

Existing Conditions



SHEET NOTES

1. SEE C0.1 FOR GENERAL SHEET NOTES.

EASEMENT NOTE 1:

UNABLE TO FIND EXHIBIT "A" MENTIONED IN DEED VOLUME 481 PAGE 82 FOR THIS SECTION OF SEWER LINE. USED WOODBURN UTILITY MAP SECTION 35-MC21-39 TO SHOW APPROXIMATE/GENERAL LOCATION.

BOTH SEWER EASEMENTS DEEDS FOR TAX LOT 7400 AND 7300 HAVE A GENERAL STATEMENT AS FOLLOWS; "A PERMANENT EASEMENT AND RIGHT-OF-WAY OF SUCH WIDTH AS MAY BE REASONABLY NECESSARY TO ACCOMPLISH THE PURPOSE OF THIS EASEMENT AS HEREIN AFTER SET FORTH UPON, OVER, UNDER AND ACROSS THE REAL PROPERTY". THIS WOULD THEN POINT TO THE LOCATION OF THE EXISTING LINE, AND WOULD BE THE EASEMENT AS SHOWN BY THE WOODBURN UTILITIES MAPS AS SHOWN HEREON.

EASEMENT NOTE 2:

R. 3657, P. 369, PERMANENT EASEMENT FOR SIDEWALK, WATER, GAS, ELECTRIC AND COMMUNICATION SERVICE LINES, FIXTURES AND FACILITIES.

DISCLAIMER: THE BOUNDARY AS SHOWN IS PRELIMINARY. FURTHER FIELD SURVEY SEARCH FOR ADDITIONAL MONUMENTS AND REFERENCES IS ONGOING.

SURVEY FOR:	SILCO COMMERCIAL CONSTRUCTION
LOCATION:	119 N PACIFIC HWY (SH 99E) WOODBURN, OR 97071
NW 1/4 SECTION 17 T5S, R1W, W.M.	CITY OF WOODBURN MARION COUNTY, OREGON
LAZER SITE / RIVERSIDE SURVEYING, LLC	CREW: TP/EG/CG REVIEW: R.J.G./M.A.T. — SCALE: 1"=20'
2003 25TH STREET S.E. SALEM, OREGON 97302 (503) 581-6362 FAX (503) 581-0901	JOB NO.: 2021-012 — SHEET
	DATE: 06/18/2021 — 1 OF 1

NORTH

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet

AAI engineering, inc.
ENGINEERING
4975 SW Griffith Drive | Suite 300 | Beaverton, OR | 97005
503.620.3030 tel | 503.620.3539 fax | www.aaieng.com

119 N PACIFIC HWY

WOODBURN, OR

SHEET TITLE

EXISTING CONDITIONS PLAN

DATE:	12/13/21
DRAWN:	JS
CHECKED:	CFT
REVISIONS:	

SHEET NUMBER

C0.2

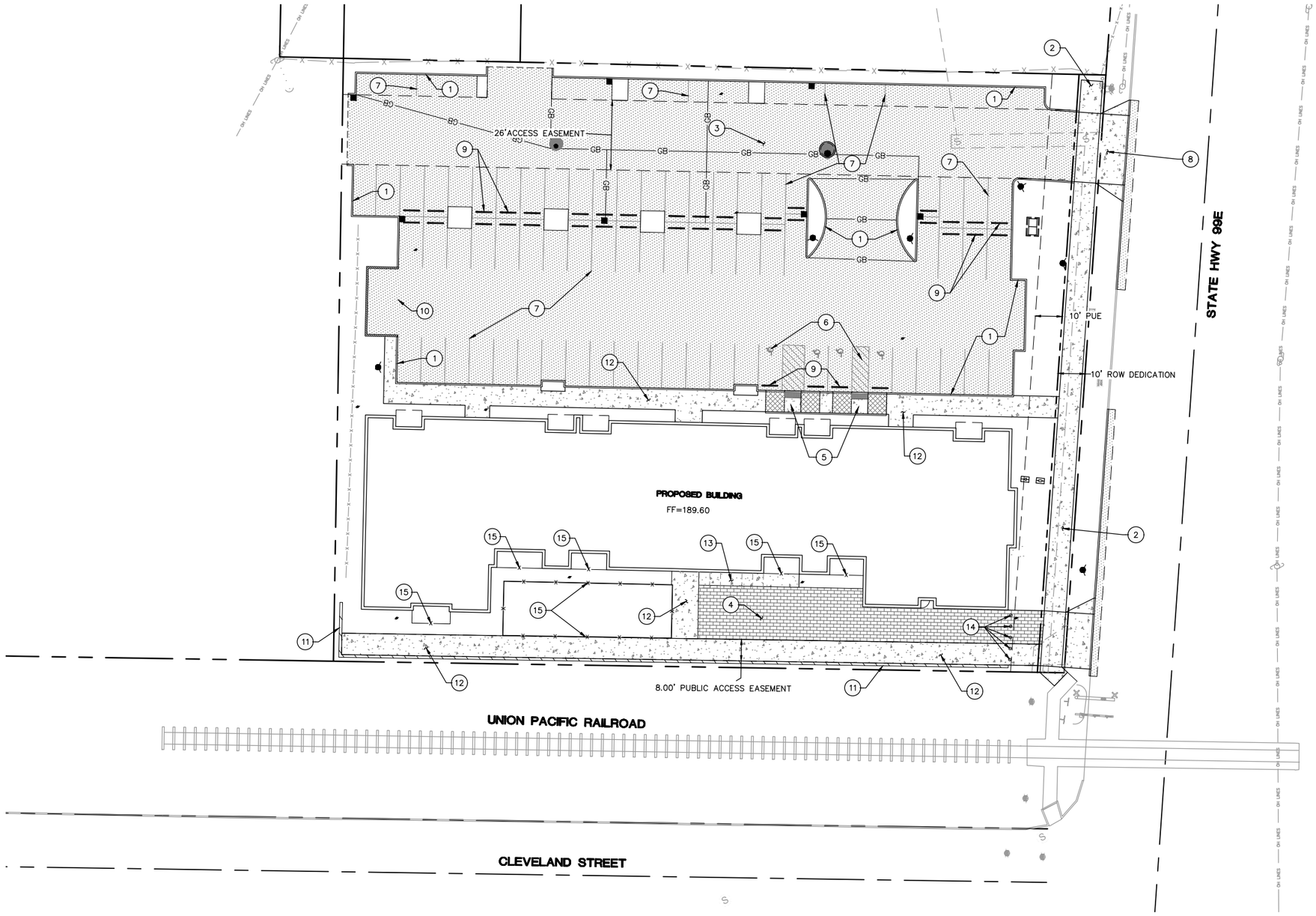
JOB NUMBER: A21194.10

02/24/2023 - CONSTRUCTION DOCUMENTS

119 N Pacific Hwy

Appendix B

Site Plan



SHEET NOTES

1. SEE SHEET C0.1 FOR GENERAL SHEET NOTES.
2. SEE ARCHITECTURAL PLANS FOR ADDITIONAL SITE INFORMATION.
3. THE CONTRACTOR SHALL HAVE A FULL SET OF THE CURRENT APPROVED CONSTRUCTION DOCUMENTS INCLUDING ADDENDA ON THE PROJECT SITE AT ALL TIMES.
4. THE CONTRACTOR SHALL KEEP THE ENGINEER AND JURISDICTION INFORMED OF CONSTRUCTION PROGRESS TO FACILITATE SITE OBSERVATIONS AT REQUIRED INTERVALS. 24-HOUR NOTICE IS REQUIRED.

(X) CONSTRUCTION NOTES

1. INSTALL CURB PER DETAIL 1/C4.0
2. INSTALL SIDEWALK PER CITY OF WOODBURN DETAIL 4150-8/C4.0
3. INSTALL ASPHALT SURFACE PER DETAIL 2/C4.0
4. INSTALL UNIT PAVER SURFACE, DESIGN BY OTHERS
5. INSTALL ADA RAMP TYPE 5 PER DETAIL 6/C4.0
6. INSTALL ADA STRIPING PER DETAIL 3/C4.0
7. INSTALL STRIPING, SEE ARCHITECTURAL PLANS FOR DETAILS
8. INSTALL DRIVEWAY PER DETAIL 4150-1/C4.0
9. INSTALL WHEELSTOP PER DETAIL 5/C4.0
10. INSTALL TRASH ENCLOSURE, DESIGN BY OTHERS
11. INSTALL RETAINING WALL, DESIGN BY OTHERS
12. INSTALL SIDEWALK PER DETAIL 7/C4.0
13. INSTALL BIKE PARKING. SEE ARCHITECTURAL PLANS FOR MORE INFORMATION.
14. INSTALL REMOVABLE BOLLARDS PER DETAIL 2/C4.2
15. INSTALL FENCE. SEE ARCHITECTURAL PLANS FOR MORE INFORMATION.

LEGEND

- PROPERTY LINE
- CONCRETE SIDEWALK SURFACING
- ASPHALT SURFACING
- EASEMENT BOUNDARY

NORTH

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet

02/24/2023 – CONSTRUCTION DOCUMENTS

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 10, 2021
CHRISTOPHER F. THORNTON
EXPIRES: 6/30/2024

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119 N PACIFIC HWY

WOODBURN, OR

SHEET TITLE

HARDSCAPE PLAN

DATE:	12/13/21
DRAWN:	JS
CHECKED:	CFT

REVISIONS:

SHEET NUMBER

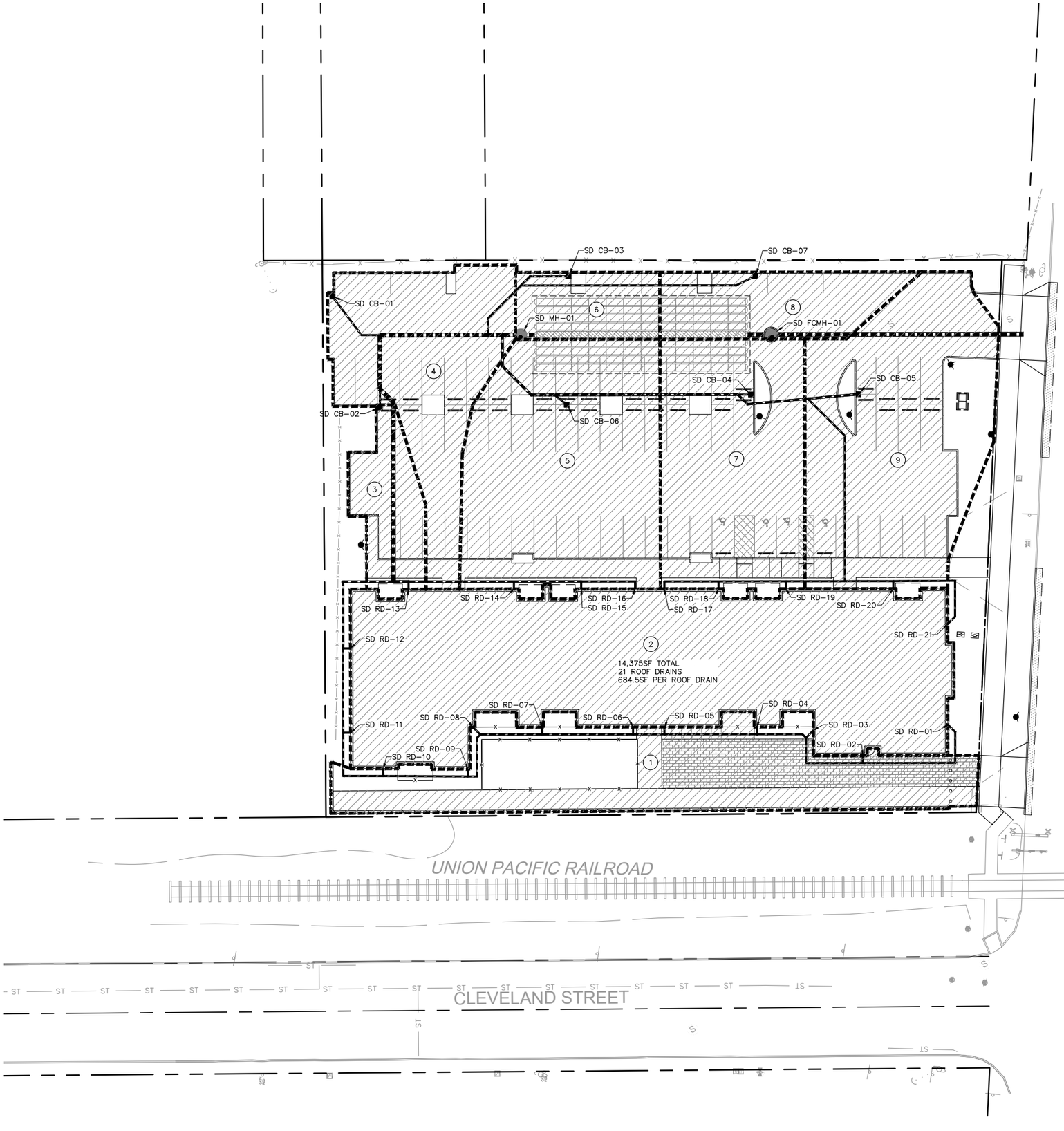
C1.0

JOB NUMBER: A21194.10

119 N Pacific Hwy

Appendix C

Storm Plan and Details



LEGEND

PROPERTY LINE

DRAINAGE BASIN BOUNDARY

DRAINAGE BASIN NUMBER (X)

IMPERVIOUS COVER

STORM LINE

STRUCTURE TYPES

TYPE	DESCRIPTION
CB	CATCH BASIN
FCMH	FLOW CONTROL MANHOLE
MH	MANHOLE
RD	ROOF DRAIN CONNECTION

IMPERVIOUS AREA CALCULATIONS

DRAINAGE BASIN #	TOTAL AREA (SF)	IMPERVIOUS (SF)	PERVIOUS (SF)
1	7,544	4,939	2,606
2	14,375	14,375	0
3	1,688	1,542	146
4	5,215	5,059	156
5	7,807	7,235	572
6	1,577	1,529	48
7	5,978	5,424	554
8	2,449	2,400	49
9	8,226	6,763	1,463

NORTH

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 10, 2012
CHRISTOPHER F. THORNTON
EXPIRES: 6/30/2024

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503.620.3030 tel | 503.620.3539 fax | www.aaieng.com

119 N PACIFIC HWY

WOODBURN, OR

SHEET TITLE

BASIN MAP

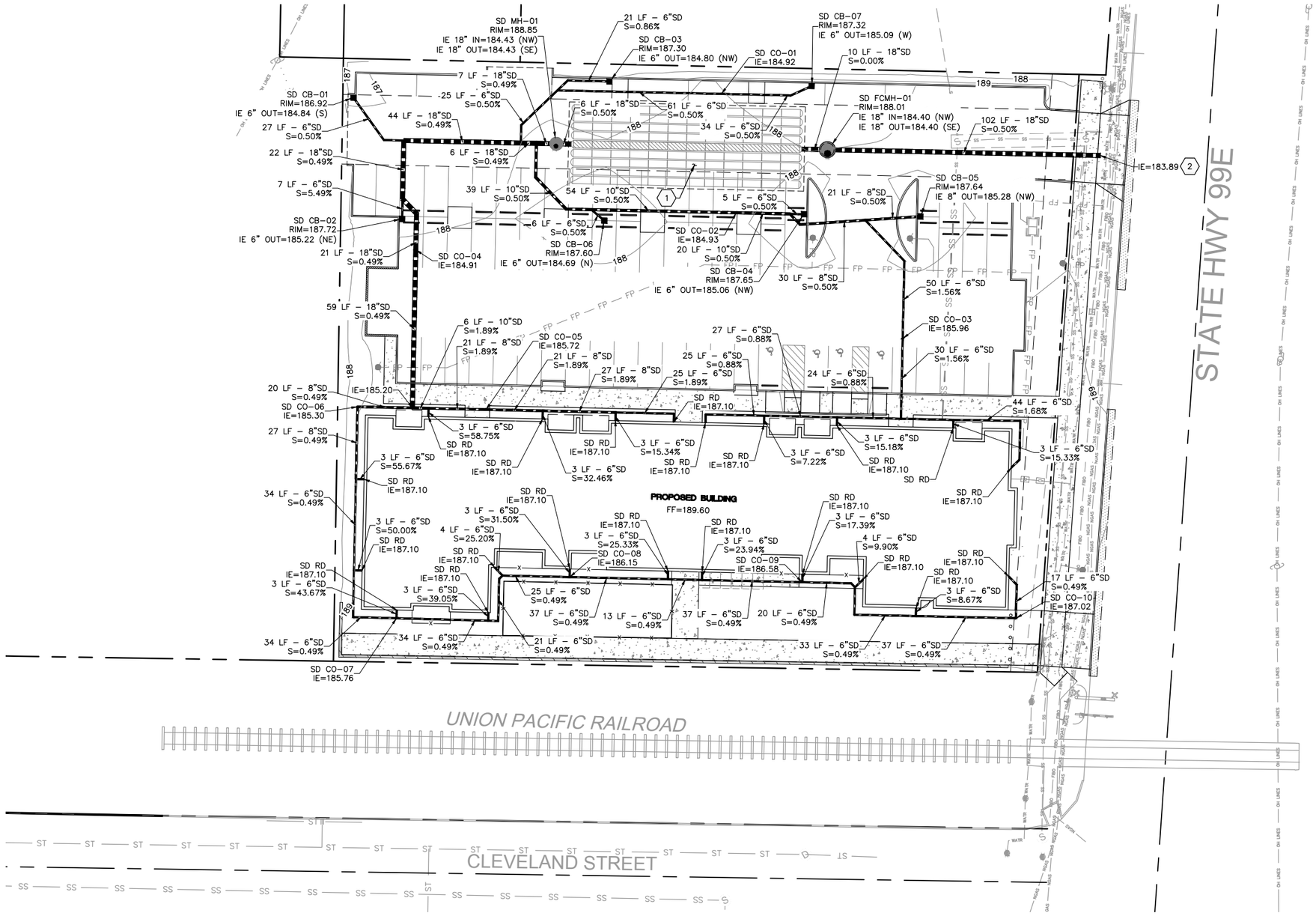
DATE: 12/13/21
DRAWN: JS
CHECKED: CFT
REVISIONS:

SHEET NUMBER

EX1.0

JOB NUMBER: A21194.10

02/24/2023 – CONSTRUCTION DOCUMENTS



SHEET NOTES

1. SEE SHEET C0.1 FOR GENERAL SHEET NOTES.
2. STRUCTURES HORIZONTAL LOCATIONS AND PIPE INVERTS ARE BASED ON THE CENTER OF THE STRUCTURE.
3. PIPE BEDDING AND BACKFILL UTILITIES SHALL BE DONE PER DETAIL 1/C4.1.
4. INSTALL THRUST BLOCKS ON FIRE AND WATER LINES PER DETAIL 2/C4.1.
5. ALL SANITARY PIPING SHALL BE PVC 3034 OR APPROVED EQUAL UNLESS NOTED OTHERWISE.
6. THIS PLAN IS GENERALLY DIAGRAMMATIC. IT DOES NOT SHOW EVERY JOINT, BEND, FITTING, OR ACCESSORY REQUIRED FOR CONSTRUCTION.
7. CLEAN OUTS SHALL BE INSTALLED IN CONFORMANCE WITH UPC CHAPTER SEVEN, SECTION 707 AND SECTION 719. THIS PLAN MAY NOT SHOW ALL REQUIRED CLEAN OUTS.
8. DOMESTIC WATER AND FIRE LINES AND ACCESSORIES BETWEEN THE WATER METER AND THE BUILDING SHALL BE INSTALLED BY A LICENSED PLUMBER EMPLOYED BY A LICENSED PLUMBING CONTRACTOR.
9. UTILITIES WITHIN FIVE FEET OF A BUILDING SHALL BE CONSTRUCTED OF MATERIALS APPROVED FOR INTERIOR USE AS DESCRIBED IN THE CURRENT EDITION OF THE UPC.
10. INLETS AND OUTLETS TO ON-SITE MANHOLES SHALL HAVE FLEXIBLE CONNECTION NO CLOSER THAN 12" AND NO FARTHER THAN 36" FROM THE MANHOLE.
11. CONTRACTOR TO VERIFY SANITARY AND WATER SIZING AND INVERTS WITH APPROVED PLUMBING PLANS PRIOR TO ORDERING MATERIALS OR BEGINNING CONSTRUCTION OF SAID UTILITIES.
12. ALL STORM AND SANITARY FITTINGS TO BE ECCENTRIC FITTINGS UNLESS OTHERWISE NOTED.

LABEL LEGEND

PIPE LABELS

UTILITY LENGTH
UTILITY SIZE
XXLF – XX" XX ← UTILITY TYPE
S=X.XX% ← SLOPE (WHERE APPLICABLE)

STRUCTURE LABELS

UTILITY TYPE (FP=FIRE PROTECTION, S=SANITARY, SD=STORM DRAINAGE, W=WATER)
STRUCTURE TYPE (SEE BELOW)
XX XX–XX ← ID NUMBER (WHERE APPLICABLE)
RIM=XX.XX ← STRUCTURE INFO (WHERE APPLICABLE)

STRUCTURE TYPES

TYPE	DESCRIPTION
CB	CATCH BASIN PER DETAIL 3/C4.1
CO	CLEANOUT PER DETAIL 3/C4.2
FCMH	FLOW CONTROL MANHOLE PER DETAIL 8/C4.1
MH	MAINTENANCE MANHOLE PER DETAIL 7/C4.1
RD	ROOF DRAIN CONNECTION – REFER TO PLUMBING PLANS

LEGEND

SANITARY SEWER LINE — SS — SS —
WATER LINE — W — W — W —
FIRE LINE — FP — FP — FP — FP —
FDC LINE — FDC — FDC — FDC —
STORM LINE

(X) STORM NOTES

1 INSTALL UNDERGROUND STORM WATER DETENTION FACILITY. (108) SC-310 STORMTECH CHAMBERS WITHIN A ROCK SECTION THAT HAS A FOOTPRINT OF 2,774 SF PER DETAILS ON SHEET C4.3. WRAP ENTIRE ROCK SECTION IN GEOSYNTHETIC FABRIC.

2 CONNECT TO EXISTING STORM STUB PER CITY OF WOODBURN GIS. CONTRACTOR TO LOCATE EXISTING STORM LINE PRIOR CONSTRUCTION AND NOTIFY ENGINEER OF FINDINGS. INVERT SHOWN IS APPROXIMATE.

NORTH

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 feet

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 10, 2021
CHRISTOPHER F. THORNTON
EXPIRES: 6/30/2024

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119 N PACIFIC HWY

WOODBURN, OR

SHEET TITLE

STORMWATER PLAN

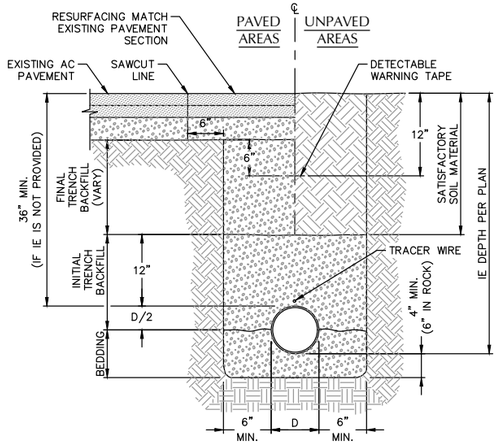
DATE: 12/13/21
DRAWN: JS
CHECKED: CFT
REVISIONS:

SHEET NUMBER

C3.0

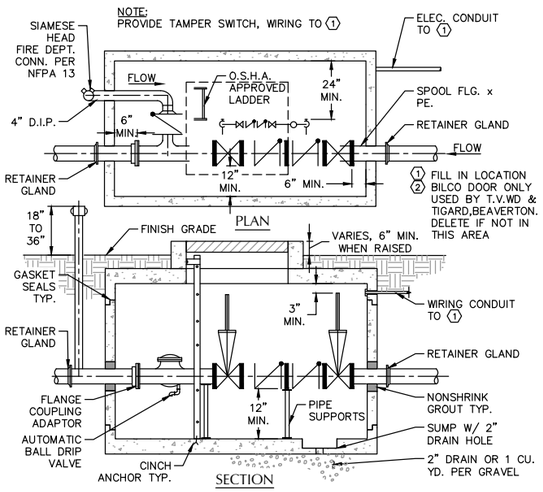
JOB NUMBER: A21194.10

02/24/2023 – CONSTRUCTION DOCUMENTS



1 TYPICAL PIPE BEDDING AND BACKFILL

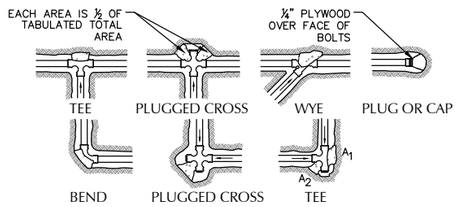
SCALE: NTS



D.D.C. SIZE	UTILITY VAULT OR EQUAL		(2) BILCO DOOR OR EQUAL
	WITH F.D.C.	WITHOUT F.D.C.	
4"	676 – WA	577 – WA	J – 5AL
6"	687 – WA	676 – WA	J – 5AL
8"	5106 – LA	687 – WA	JD – 3AL
10"	5106 – LA	5106 – LA	JD – 3AL

4 DOUBLE CHECK DETECTOR ASSEMBLY FIRE SERVICE VAULT W/ DRAIN TO GROUND

SCALE: NTS



1. CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
2. KEEP CONCRETE CLEAR OF JOINT AND ACCESSORIES.
3. THE REQUIRED THRUST BEARING AREAS FOR SPECIAL CONNECTIONS ARE SHOWN ENCIRCLED ON THE PLAN; e.g. (15) INDICATES 15 SQUARE FEET BEARING AREA REQUIRED.
4. IF NOT SHOWN ON PLANS REQUIRED BEARING AREAS AT FITTING SHALL BE AS INDICATED BELOW, ADJUST IF NECESSARY, TO CONFORM TO THE TEST PRESSURE(S) AND ALLOWABLE SOIL BEARING STRESS (ES) STATED IN THE SPECIAL SPECIFICATIONS.
5. BEARING AREAS AND SPECIAL BLOCKING DETAILS SHOWN ON PLANS TAKE PRECEDENCE OVER BEARING AREAS AND BLOCKING DETAILS SHOWN ON THIS STANDARD DETAIL.

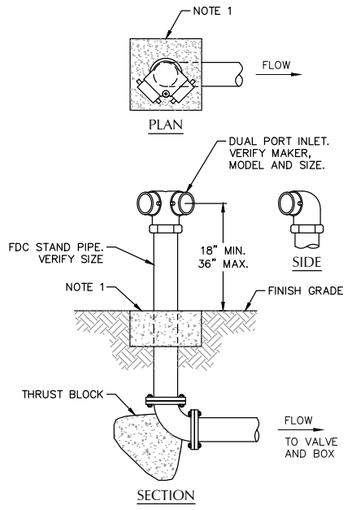
BEARING AREA OF THRUST BLOCK IN SQUARE FOOT

			TEE PLUGGED ON RUN				
FITTING SIZE	TEE, WYE, PLUG, OR CAP	90° BEND PLUGGED CROSS	A1	A2	45° BEND	22½° BEND	11¼° BEND
4	1.0	1.4	1.9	1.4	1.0		
6	2.1	3.0	4.3	3.0	1.6	1.0	
8	3.8	5.3	7.6	5.4	2.9	1.5	1.0
10	5.9	8.4	11.8	8.4	4.6	2.4	1.2

NOTE:
ABOVE BEARING AREAS BASED ON TEST PRESSURE OF 150 p.s.i. AND AN ALLOWABLE SOIL BEARING STRESS OF 2000 p.s.i.. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURE AND SOIL BEARING STRESSES, USE THE FOLLOWING EQUATION: BEARING AREA = (TEST PRESSURE/150)X(2000/ SOIL BEARING STRESS)X(TABLE VALUE).

2 THRUST BLOCK

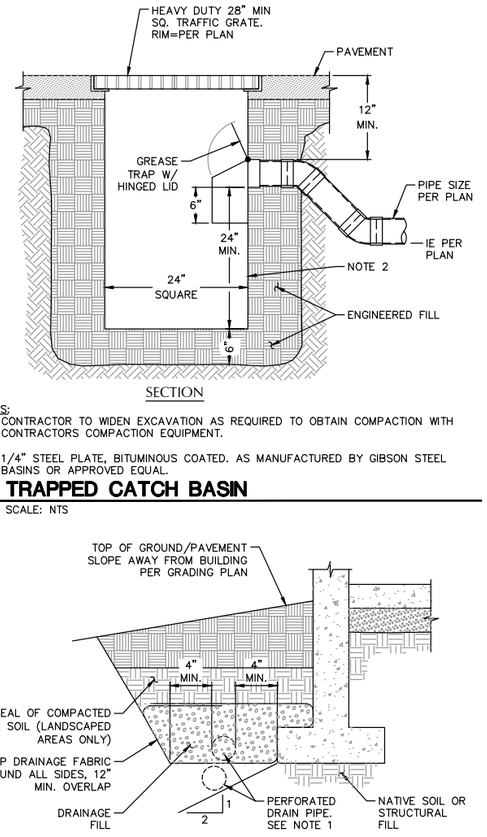
SCALE: NTS



NOTES:
1. CONCRETE ANCHOR PAD TO BE 12"x12"x6" THICK, UNLESS NOTED OTHERWISE. ELIMINATE IF INSTALLED IN CONCRETE PAVED AREA.
2. USE FLANGE OR THREADED FITTINGS.
3. CONTRACTOR SHALL PROVIDE SINGLE CHECK VALVE AND BALL DRIP VALVE IN ACCESSIBLE LOCATION INSIDE DDCV VAULT. COORDINATE WITH PLUMBING.

5 FIRE DEPARTMENT CONNECTION (FDC) DUAL PORT

SCALE: NTS



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.

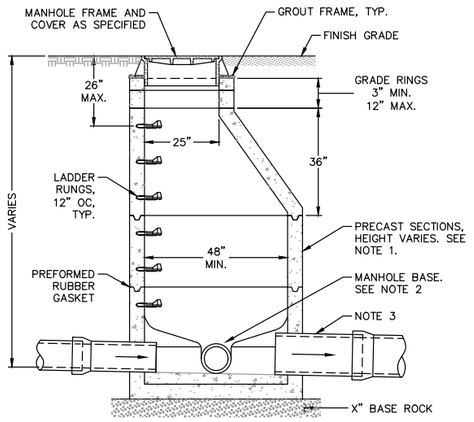
3 TRAPPED CATCH BASIN

SCALE: NTS

NOTES:
1. LAY PERFORATED DRAIN PIPE ON MIN. 0.5% GRADIENT, WIDENING EXCAVATION AS REQUIRED. MAINTAIN PIPE ABOVE 2:1 SLOPE AS SHOWN.
2. CONNECT TO FOUNDATION DRAIN STUBOUT SHOWN ON PLANS.

6 PERIMETER FOUNDATION DRAIN

SCALE: NTS

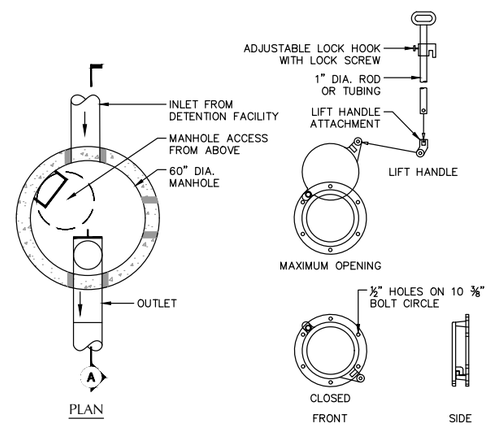


NOTES:
1. ALL PRECAST SECTIONS SHALL CONFORM TO REQUIREMENTS OF ASTM C-478.
2. MANHOLE BASE MAY BE PRECAST OR CAST IN PLACE. SEE STANDARD MANHOLE BASE DETAILS.
3. ALL CONNECTING PIPES SHALL HAVE FLEXIBLE, GASKETED AND UNRESTRAINED JOINT WITHIN 18" OF MANHOLE VAULT..

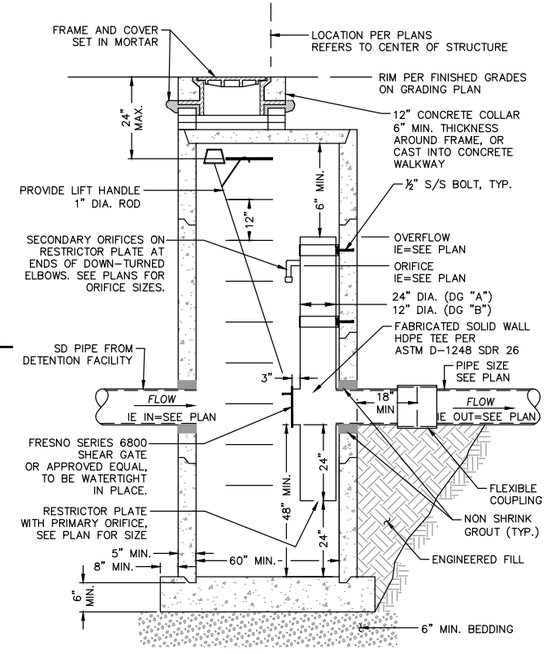
7 STANDARD MANHOLE

SCALE: NTS

FLOW CONTROL ORIFICE SIZING		
STRUCTURE	2-YR (RESTRICTOR PLATE INVERT)	EMERGENCY OVERFLOW
FCMH-01	1.6"ø @ 182.40	18"ø @ 186.52



SHEAR GATE DETAILS



8 FLOW CONTROL MANHOLE

SCALE: NTS

REGISTERED PROFESSIONAL ENGINEER
OREGON JULY 10, 2001
CHRISTOPHER F. THORNTON
EXPIRES: 6/30/2024

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119 N PACIFIC HWY

WOODBURN, OR

SHEET TITLE

DETAILS

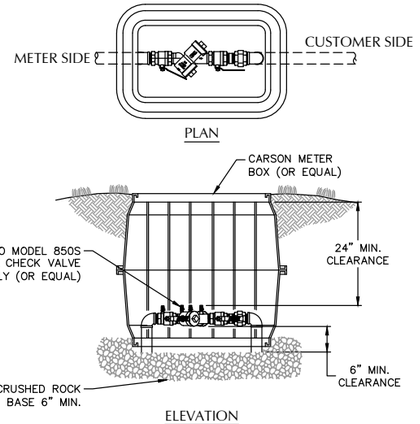
DATE: 12/13/21
DRAWN: JS
CHECKED: CFT
REVISIONS:

SHEET NUMBER

C4.1

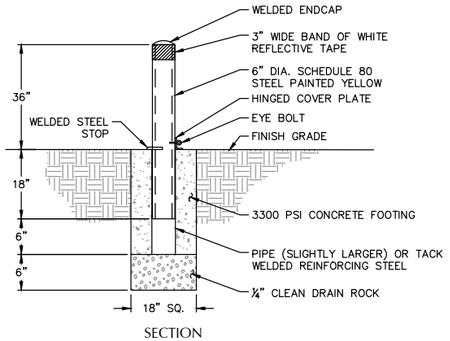
JOB NUMBER: A21194.10

02/24/2023 – CONSTRUCTION DOCUMENTS

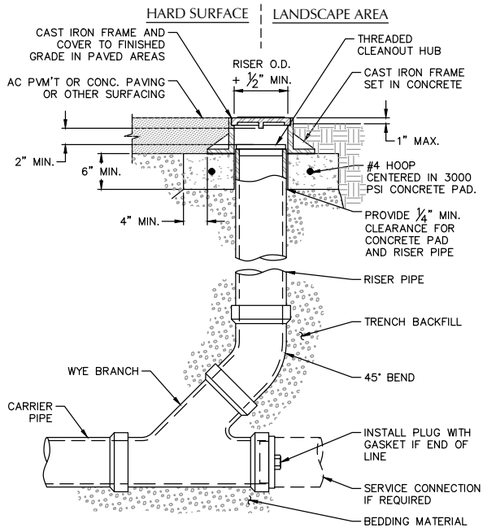


NOTE:
INSTALLATION SHOWN IS ONLY A SUGGESTION. THE DISTANCE FROM BOTTOM OF DEVICE TO FINISH GRADE, FREEZE PROTECTION, AND CLEARANCE FOR TESTING & REPAIR ARE THE MAJOR CONSIDERATIONS FOR INSTALLATION. PLUGS TO BE INSTALLED IN TEST COCKS OF BELOW GROUND INSTALLATIONS (NO DISSIMILAR METALS). IF FREEZE PROTECTION IS PROVIDED, THE 24" MIN CLEARANCE MAY BE REDUCED.

1 DOUBLE CHECK BACKFLOW ASSEMBLY
SCALE: NTS



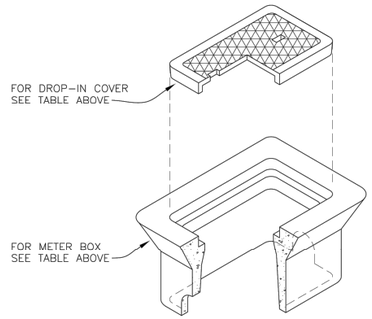
2 REMOVABLE PIPE BOLLARD
SCALE: NTS



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.

3 STANDARD CLEANOUT (COTG)
SCALE: NTS

BROOKS PRODUCTS		
	COVER	METER BOX
DIA.	MODEL NO.	
1"	No. 37-T CAST IRON COVER*	No. 37 MB-BODY*
2"	No. 65-TF STEEL COVER (FLUSH)*	No. 65 MB-BODY*
* OR APPROVED EQUAL		



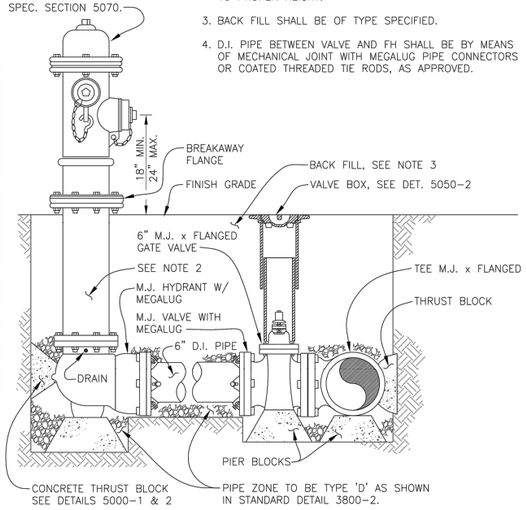
WOODBURN OREGON Incorporated 1889
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

METER BOX

REV: FEB 2020
SCALE: NTS
DET No. 5050-1

NOTES:
1. BED PIPE WITH 1"-MINUS SO AS TO CARRY LOAD OF PIPE EVENLY WITHOUT FIXING LOAD ON PIER BLOCKS DIG OUT BELOW BED FOR PIER BLOCKS, AS DIRECTED.
2. BURY HEIGHT: 3-1/2 TO 4 FEET. IF GREATER DEPTH IS REQUIRED EXTENSIONS SHALL BE USED TO ADJUST FH TO PROPER HEIGHT.
3. BACK FILL SHALL BE OF TYPE SPECIFIED.
4. D.I. PIPE BETWEEN VALVE AND FH SHALL BE BY MEANS OF MECHANICAL JOINT WITH MEGALUG PIPE CONNECTORS OR COATED THREADED TIE RODS, AS APPROVED.

HYDRANT: MUELLER CENTURION A423 OR M & H RELIANT 929T. REFERENCE TECHNICAL SPEC. SECTION 5070.

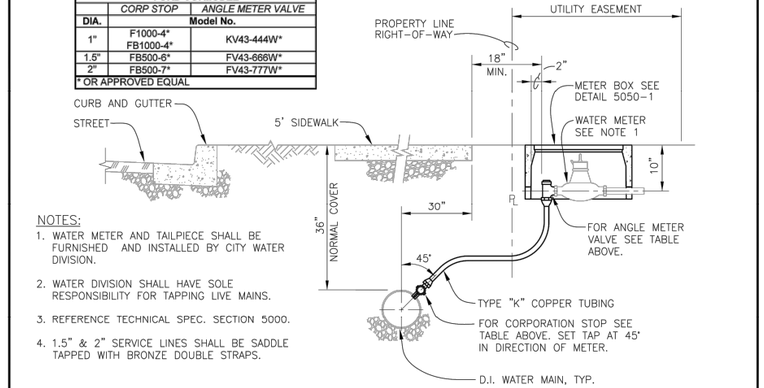


WOODBURN OREGON Incorporated 1889
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

FIRE HYDRANT ASSEMBLY

REV: FEB. 2020
SCALE: NTS
DET No. 5070-1

FORD CO. MODEL		
	CORP STOP	ANGLE METER VALVE
DIA.	Model No.	
1"	F1000-4* FB1000-4*	KV43-444W*
1.5"	FB500-6*	FV43-666W*
2"	FB500-7*	FV43-777W*
* OR APPROVED EQUAL		



NOTES:
1. WATER METER AND TAILPIECE SHALL BE FURNISHED AND INSTALLED BY CITY WATER DIVISION.
2. WATER DIVISION SHALL HAVE SOLE RESPONSIBILITY FOR TAPPING LIVE MAINS.
3. REFERENCE TECHNICAL SPEC. SECTION 5000.
4. 1.5" & 2" SERVICE LINES SHALL BE SADDLE TAPPED WITH BRONZE DOUBLE STRAPS.

WOODBURN OREGON Incorporated 1889
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

WATER SERVICE CONNECTION

REV: MAY 2011
SCALE: NTS
DET No. 5000-4

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 10, 2021
CHRISTOPHER F. THORNTON
EXPIRES: 6/30/2024

AAI engineering, inc.
ENGINEERING
4975 SW Griffith Drive | Suite 300 | Beaverton, OR | 97005
503.620.3030 tel | 503.620.3539 fax | www.aaieng.com

119 N PACIFIC HWY
WOODBURN, OR

SHEET TITLE
DETAILS

DATE: 12/13/21
DRAWN: JS
CHECKED: CFT
REVISIONS:

SHEET NUMBER
C4.2

JOB NUMBER: A21194.10

02/24/2023 – CONSTRUCTION DOCUMENTS

Advanced Drainage Systems, Inc.

SiteAssist™ FOR STORMTECH INSTALLATION INSTRUCTIONS VISIT OUR APP

SC-310 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH SC-310.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE OR POLYETHYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. 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 SHALL BE GREATER THAN OR EQUAL TO 400 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. 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.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2922 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-310 SYSTEM

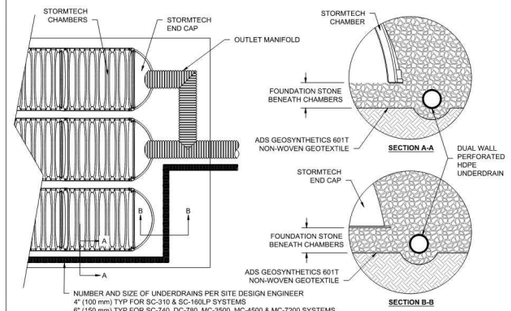
1. STORMTECH SC-310 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH SC-310 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm).
8. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
9. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

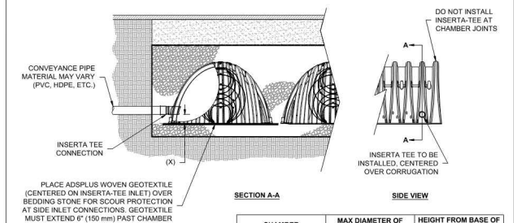
1. STORMTECH SC-310 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
2. THE USE OF CONSTRUCTION EQUIPMENT OVER SC-310 & SC-740 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.



5 UNDERDRAIN DETAIL

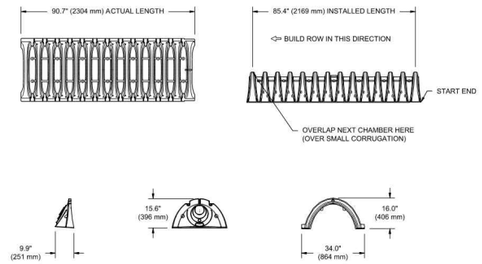


CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 mm)	4" (100 mm)
SC-740	10" (250 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
MC-3500	12" (300 mm)	6" (150 mm)
MC-4500	12" (300 mm)	8" (200 mm)
MC-7200	12" (300 mm)	8" (200 mm)

INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON

NOTES:
- PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.
- CONTACT ADS ENGINEERING SERVICES IF INSERTA TEE INLET MUST BE RAISED AS NOT ALL INVERTS ARE POSSIBLE.

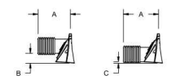
6 INSERTA-TEE SIDE INLET DETAIL



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	34.0" X 16.0" X 85.4"	(864 mm X 406 mm X 2169 mm)
CHAMBER STORAGE	14.7 CUBIC FEET	(0.42 m³)
MINIMUM INSTALLED STORAGE*	31.0 CUBIC FEET	(0.88 m³)
WEIGHT	35.0 lbs.	(16.8 kg)

*ASSUMES 6" (152 mm) ABOVE, BELOW, AND BETWEEN CHAMBERS



PRE-FAB STUB AT BOTTOM OF END CAP WITH FLAMP END WITH "BR"
PRE-FAB STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PRE-FAB STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
PRE CORED END CAPS END WITH "PC"

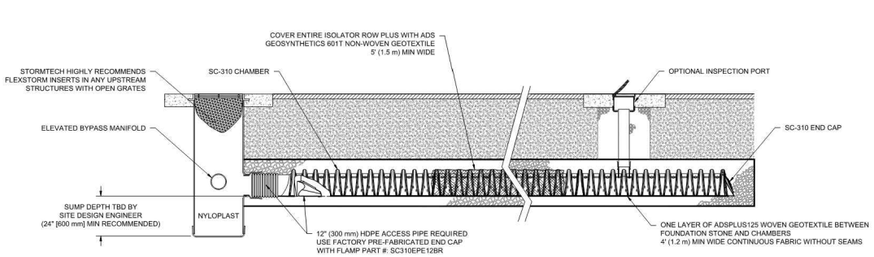
PART #	STUB	A	B	C
SC310EPE06T / SC310EPE06TPC	6" (150 mm)	9.6" (244 mm)	5.8" (147 mm)	---
SC310EPE06B / SC310EPE06BPC			---	0.5" (13 mm)
SC310EPE08T / SC310EPE08TPC	8" (200 mm)	11.9" (302 mm)	3.5" (89 mm)	---
SC310EPE08B / SC310EPE08BPC			---	0.6" (15 mm)
SC310EPE10T / SC310EPE10TPC	10" (250 mm)	12.7" (323 mm)	1.4" (36 mm)	---
SC310EPE10B / SC310EPE10BPC			---	0.7" (18 mm)
SC310EPE12B	12" (300 mm)	13.5" (343 mm)	---	0.9" (23 mm)
SC310EPE12BR	12" (300 mm)	13.5" (343 mm)	---	0.9" (23 mm)

ALL STUBS, EXCEPT FOR THE SC310EPE12B ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

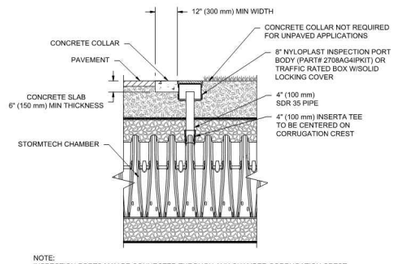
* FOR THE SC310EPE12B THE 12" (300 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 0.25" (6 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL

2 SC-310 TECHNICAL SPECIFICATIONS



3 SC-310 ISOLATOR ROW PLUS DETAIL



4 4" PVC INSPECTION PORT DETAIL (SC SERIES CHAMBER)

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.

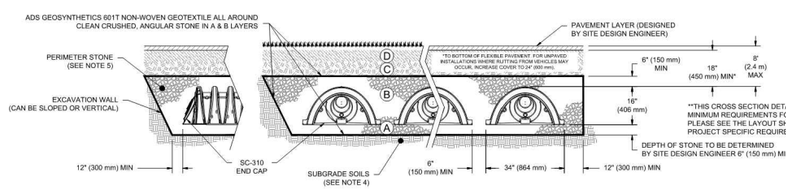
NOTES

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-310 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 18" (450 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	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	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.



NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-310 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.
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 F2922 SHALL BE GREATER THAN OR EQUAL TO 400 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-310 CROSS SECTION DETAIL

DRAWN: | DATE:
REVIEWED: | PROJECT NO:
REV: | NOT TO SCALE

SC-310
STANDARD DETAILS

StormTech® Chamber System
888-892-2694 | WWW.STORMTECH.COM

4640 TRUEMAN BLVD
HILLIARD, OH 43026

ADS Advanced Drainage Systems, Inc.

SHEET

REGISTERED PROFESSIONAL ENGINEER — OREGON — JULY 10, 2015 — CHRISTOPHER F. THORNTON — EXPIRES: 6/30/2024

AAI ENGINEERING
4975 SW Griffith Drive | Suite 300 | Beaverton, OR | 97005
503.620.3030 tel | 503.620.3539 fax | www.aaieng.com

119 N PACIFIC HWY
WOODBURN, OR

SHEET TITLE
DETAILS

DATE: 12/13/21
DRAWN: JS
CHECKED: CFT
REVISIONS:

SHEET NUMBER
C4.3

JOB NUMBER: A21194.10

02/24/2023 – CONSTRUCTION DOCUMENTS

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119 N Pacific Hwy

Appendix D

Stormwater Calculations

Table 7 - 1
VOLUMES FOR DIFFERENT INTENSITY STORMS
FOR 10-ACRE SITE

Storms	Results (Rates)	i (INTENSITIES)	A = 435,600 =10 acres	Developed C = 0.71 (UN)developed C = 0.25	ft^3 Sec (cfs)	Volumes ft^3 storms	3600sec hrs sec hrs storm
100 yr.	1.26" 2.7 hrs	0.467 in hr	435,600 ft^2 or 10 acres	0.71	3.313	32,205 ft^3	32,205 ft^3
				0.25	1.167	11,340 ft^3	-- 11,340 ft^3 20,865 ft^3 storage volume
50 yr.	1.20" 2.76 hrs	0.435 in hr	435,600 ft^2 or 10 acres	0.71	3.087	30,672 ft^3	30,672 ft^3
				0.25	1.087	10,800 ft^3	-- 10,800 ft^3 19,872 ft^3 storage volume
25 yr.	1.14" 2.86 hrs	0.399 in hr	435,600 ft^2 or 10 acres	0.71	2.830	29,138 ft^3	29,138 ft^3
				0.25	0.996	10,255 ft^3	-- 10,255 ft^3 18,883 ft^3 storage volume
10 yr.	1.08" 2.97 hrs	0.364 in hr	435,600 ft^2 or 10 acres	0.71	2.582	27,605 ft^3	27,605 ft^3
				0.25	0.909	9,720 ft^3	-- 9,720 ft^3 17,885 ft^3 storage volume
5 yr.	0.935" 3.28 hrs	0.285 in hr	435,600 ft^2 or 10 acres	0.71	2.024	23,899 ft^3	23,899 ft^3
				0.25	0.713 (320 gpm)	8,415ft^3	-- 8,415 ft^3 15,484 ft^3 storage volume
2 yr.	0.800" 3.64 hrs	0.220 in hr	435,600 ft^2 or 10 acres	0.71	1.560	20,448 ft^3	20,448 ft^3
				0.25	0.549	7,200 ft^3	-- 7,200 ft^3 13,248 ft^3 storage volume

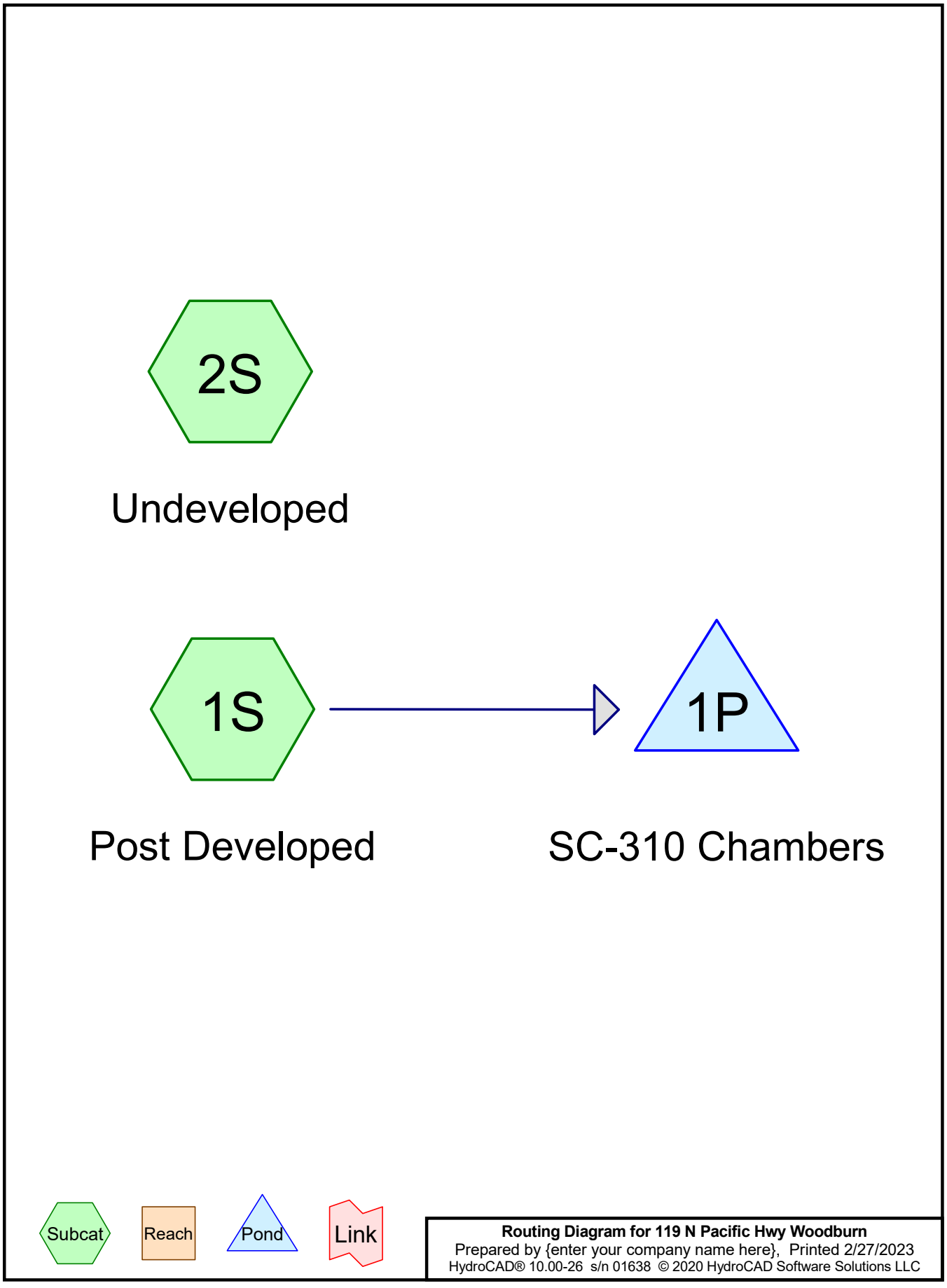
CITY OF WOODBURN
RUN OFF DETENTION REQUIREMENT

1) **Construct a device that has capacity for detaining difference in run off volume received by undeveloped and developed land for a 25-year storm.**
2) **Construct a discharge orifice of a size that the quantity of run off through the orifice is equal to run off flow from a storm of 5-year or less, undeveloped land.**
3) **Construct a detention facility to have a post-development 25-year capacity with a discharge orifice (or structure) sized to limit outflow to no more than the undeveloped site peak run off for the existing (undeveloped) 5 year frequency storm. Detention volumes calculated by the following methods are acceptable:**
   A. Santa Barbara Urban Hydrograph routing model (as prescribed by the King County Surface Water Design Manual) for the post development 25-year runoff hydrograph detained back to the existing 5 year peak site discharge.
   B. 18,883 CF/ 10 Acre drainage area as per City of Woodburn standard table, above, based on the rational method.

SAFETY REQUIREMENTS

1) **Depth of storm water within 30 feet from the edge of detention ponds, if open to public, shall be limited to 3 feet, then gradual slope (3%) to higher depth shall be allowed. Maximum pond side slopes shall be 3' horizontal to 1' vertical, however, gentler slope is desirable.**

REV. A STRMVOLM-10/02/95 updated 08/30/96 Item #3 added 12/9/96 Safety Item revised.
REV. B. APPROVED BY CITY COUNCIL 12/9/96



Routing Diagram for 119 N Pacific Hwy Woodburn
Prepared by {enter your company name here}, Printed 2/27/2023

Project Notes

Rainfall events imported from "17043 Curtis Trailer Hydrocad.hcp"

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.128	79	50-75% Grass cover, Fair, HSG C (1S)
1.259	86	<50% Grass cover, Poor, HSG C (2S)
1.131	98	Paved parking, Concrete, Roof (1S)
2.519	**91**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
1.388	HSG C	1S, 2S
0.000	HSG D	
1.131	Other	1S
2.519		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.128	0.000	0.000	0.128	50-75% Grass cover, Fair	1S
0.000	0.000	1.259	0.000	0.000	1.259	<50% Grass cover, Poor	2S
0.000	0.000	0.000	0.000	1.131	1.131	Paved parking, Concrete, Roof	1S
0.000	**0.000**	**1.388**	**0.000**	**1.131**	**2.519**	**TOTAL AREA**	

Time span=0.00-50.00 hrs, dt=0.05 hrs, 1001 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Post Developed Runoff Area=54,860 sf 89.80% Impervious Runoff Depth=0.66"
Tc=5.0 min CN=79/98 Runoff=0.99 cfs 0.070 af

Subcatchment 2S: Undeveloped Runoff Area=54,860 sf 0.00% Impervious Runoff Depth=0.17"
Tc=5.0 min CN=86/0 Runoff=0.10 cfs 0.018 af

Pond 1P: SC-310 Chambers Peak Elev=1.35' Storage=2,448 cf Inflow=0.99 cfs 0.070 af
Outflow=0.08 cfs 0.070 af

Total Runoff Area = 2.519 ac Runoff Volume = 0.087 af Average Runoff Depth = 0.42"
55.10% Pervious = 1.388 ac 44.90% Impervious = 1.131 ac

Summary for Subcatchment 1S: Post Developed

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

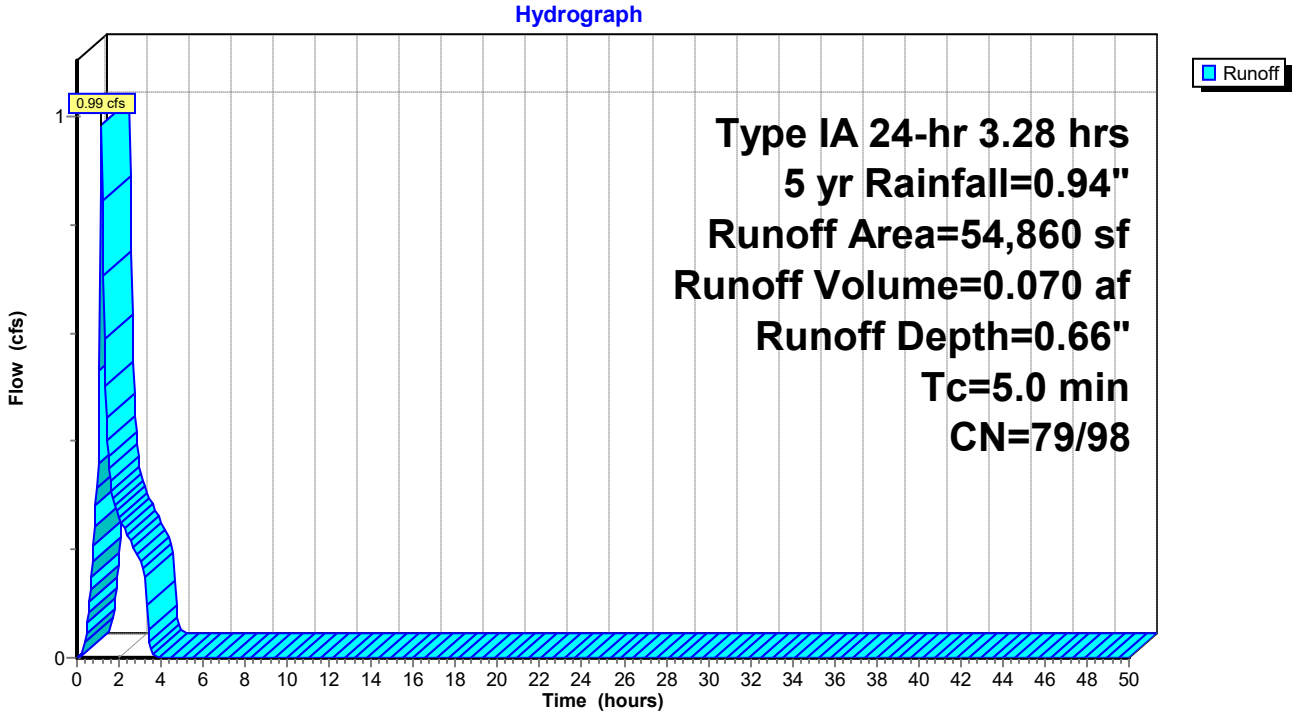
Runoff = 0.99 cfs @ 1.15 hrs, Volume= 0.070 af, Depth= 0.66"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type IA 24-hr 3.28 hrs 5 yr Rainfall=0.94"

	Area (sf)	CN	Description
*	49,266	98	Paved parking, Concrete, Roof
	5,594	79	50-75% Grass cover, Fair, HSG C
	54,860	96	Weighted Average
	5,594	79	10.20% Pervious Area
	49,266	98	89.80% Impervious Area

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

Subcatchment 1S: Post Developed



Hydrograph for Subcatchment 1S: Post Developed

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
1.00	0.28	0.00	0.13	**0.36**
2.00	0.71	0.01	0.51	**0.26**
3.00	**0.90**	**0.05**	**0.70**	0.18
4.00	**0.94**	**0.05**	**0.73**	0.00
5.00	0.94	0.05	0.73	0.00
6.00	0.94	0.05	0.73	0.00
7.00	0.94	0.05	0.73	0.00
8.00	0.94	0.05	0.73	0.00
9.00	0.94	0.05	0.73	0.00
10.00	0.94	0.05	0.73	0.00
11.00	0.94	0.05	0.73	0.00
12.00	0.94	0.05	0.73	0.00
13.00	0.94	0.05	0.73	0.00
14.00	0.94	0.05	0.73	0.00
15.00	0.94	0.05	0.73	0.00
16.00	0.94	0.05	0.73	0.00
17.00	0.94	0.05	0.73	0.00
18.00	0.94	0.05	0.73	0.00
19.00	0.94	0.05	0.73	0.00
20.00	0.94	0.05	0.73	0.00
21.00	0.94	0.05	0.73	0.00
22.00	0.94	0.05	0.73	0.00
23.00	0.94	0.05	0.73	0.00
24.00	0.94	0.05	0.73	0.00
25.00	0.94	0.05	0.73	0.00
26.00	0.94	0.05	0.73	0.00
27.00	0.94	0.05	0.73	0.00
28.00	0.94	0.05	0.73	0.00
29.00	0.94	0.05	0.73	0.00
30.00	0.94	0.05	0.73	0.00
31.00	0.94	0.05	0.73	0.00
32.00	0.94	0.05	0.73	0.00
33.00	0.94	0.05	0.73	0.00
34.00	0.94	0.05	0.73	0.00
35.00	0.94	0.05	0.73	0.00
36.00	0.94	0.05	0.73	0.00
37.00	0.94	0.05	0.73	0.00
38.00	0.94	0.05	0.73	0.00
39.00	0.94	0.05	0.73	0.00
40.00	0.94	0.05	0.73	0.00
41.00	0.94	0.05	0.73	0.00
42.00	0.94	0.05	0.73	0.00
43.00	0.94	0.05	0.73	0.00
44.00	0.94	0.05	0.73	0.00
45.00	0.94	0.05	0.73	0.00
46.00	0.94	0.05	0.73	0.00
47.00	0.94	0.05	0.73	0.00
48.00	0.94	0.05	0.73	0.00
49.00	0.94	0.05	0.73	0.00
50.00	0.94	0.05	0.73	0.00

Summary for Subcatchment 2S: Undeveloped

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

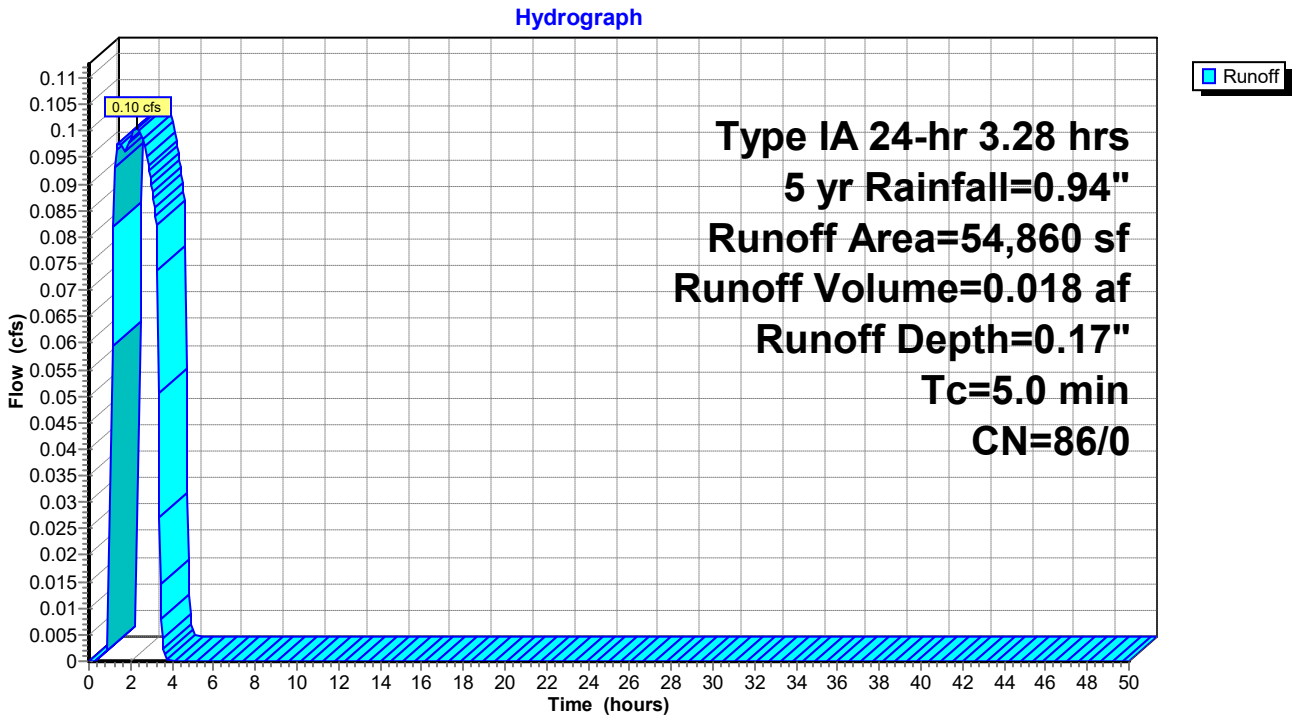
Runoff = 0.10 cfs @ 2.28 hrs, Volume= 0.018 af, Depth= 0.17"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type IA 24-hr 3.28 hrs 5 yr Rainfall=0.94"

Area (sf)	CN	Description
54,860	86	<50% Grass cover, Poor, HSG C
54,860	86	100.00% Pervious Area

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

Subcatchment 2S: Undeveloped



Hydrograph for Subcatchment 2S: Undeveloped

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
1.00	0.28	0.00	0.00	0.00
2.00	0.71	0.07	0.00	**0.10**
3.00	**0.90**	**0.15**	0.00	**0.09**
4.00	**0.94**	**0.17**	0.00	0.00
5.00	0.94	0.17	0.00	0.00
6.00	0.94	0.17	0.00	0.00
7.00	0.94	0.17	0.00	0.00
8.00	0.94	0.17	0.00	0.00
9.00	0.94	0.17	0.00	0.00
10.00	0.94	0.17	0.00	0.00
11.00	0.94	0.17	0.00	0.00
12.00	0.94	0.17	0.00	0.00
13.00	0.94	0.17	0.00	0.00
14.00	0.94	0.17	0.00	0.00
15.00	0.94	0.17	0.00	0.00
16.00	0.94	0.17	0.00	0.00
17.00	0.94	0.17	0.00	0.00
18.00	0.94	0.17	0.00	0.00
19.00	0.94	0.17	0.00	0.00
20.00	0.94	0.17	0.00	0.00
21.00	0.94	0.17	0.00	0.00
22.00	0.94	0.17	0.00	0.00
23.00	0.94	0.17	0.00	0.00
24.00	0.94	0.17	0.00	0.00
25.00	0.94	0.17	0.00	0.00
26.00	0.94	0.17	0.00	0.00
27.00	0.94	0.17	0.00	0.00
28.00	0.94	0.17	0.00	0.00
29.00	0.94	0.17	0.00	0.00
30.00	0.94	0.17	0.00	0.00
31.00	0.94	0.17	0.00	0.00
32.00	0.94	0.17	0.00	0.00
33.00	0.94	0.17	0.00	0.00
34.00	0.94	0.17	0.00	0.00
35.00	0.94	0.17	0.00	0.00
36.00	0.94	0.17	0.00	0.00
37.00	0.94	0.17	0.00	0.00
38.00	0.94	0.17	0.00	0.00
39.00	0.94	0.17	0.00	0.00
40.00	0.94	0.17	0.00	0.00
41.00	0.94	0.17	0.00	0.00
42.00	0.94	0.17	0.00	0.00
43.00	0.94	0.17	0.00	0.00
44.00	0.94	0.17	0.00	0.00
45.00	0.94	0.17	0.00	0.00
46.00	0.94	0.17	0.00	0.00
47.00	0.94	0.17	0.00	0.00
48.00	0.94	0.17	0.00	0.00
49.00	0.94	0.17	0.00	0.00
50.00	0.94	0.17	0.00	0.00

Summary for Pond 1P: SC-310 Chambers

Inflow Area = 1.259 ac, 89.80% Impervious, Inflow Depth = 0.66" for 5 yr event
Inflow = 0.99 cfs @ 1.15 hrs, Volume= 0.070 af
Outflow = 0.08 cfs @ 3.37 hrs, Volume= 0.070 af, Atten= 92%, Lag= 133.3 min
Primary = 0.08 cfs @ 3.37 hrs, Volume= 0.070 af

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 1.35' @ 3.37 hrs Surf.Area= 2,775 sf Storage= 2,448 cf

Plug-Flow detention time= 392.4 min calculated for 0.070 af (100% of inflow)
Center-of-Mass det. time= 391.9 min (495.9 - 104.1)

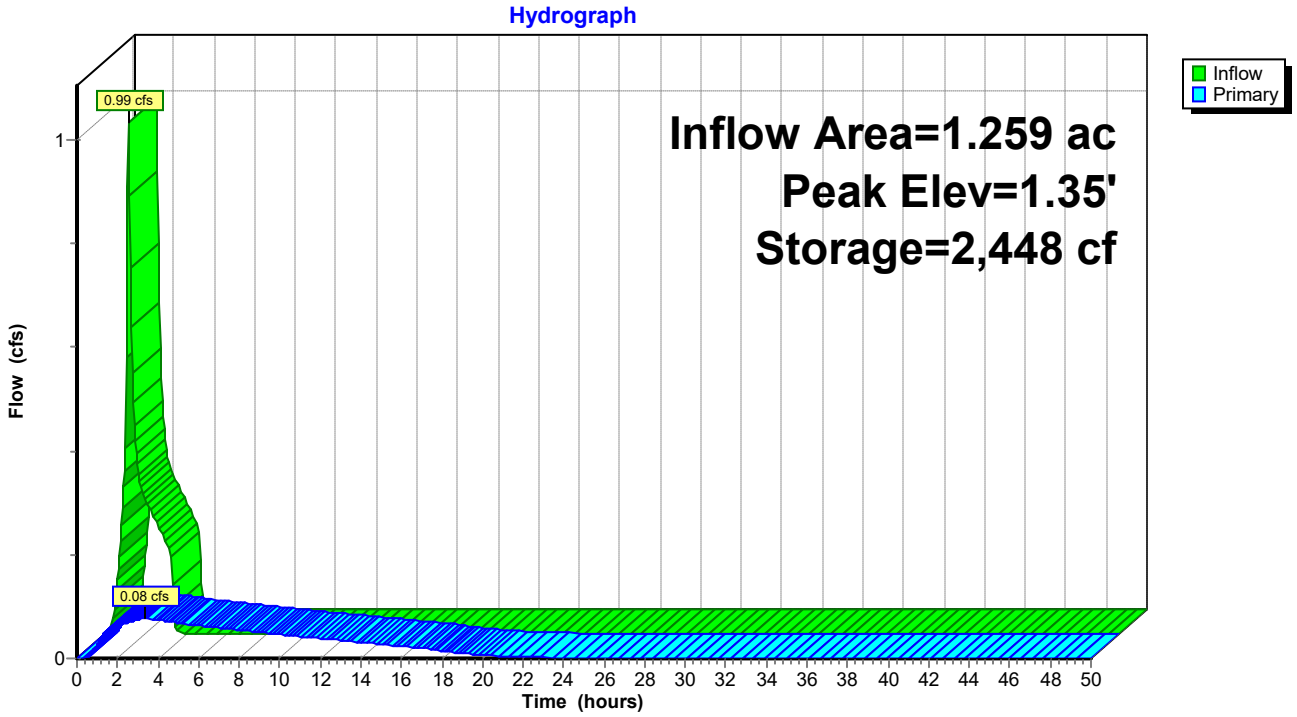
Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	1,949 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 6,466 cf Overall - 1,592 cf Embedded = 4,874 cf x 40.0% Voids
#2	0.00'	1,592 cf	**ADS_StormTech SC-310 +Cap** x 108 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 108 Chambers in 10 Rows
		3,542 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	2,775	0	0
2.33	2,775	6,466	6,466

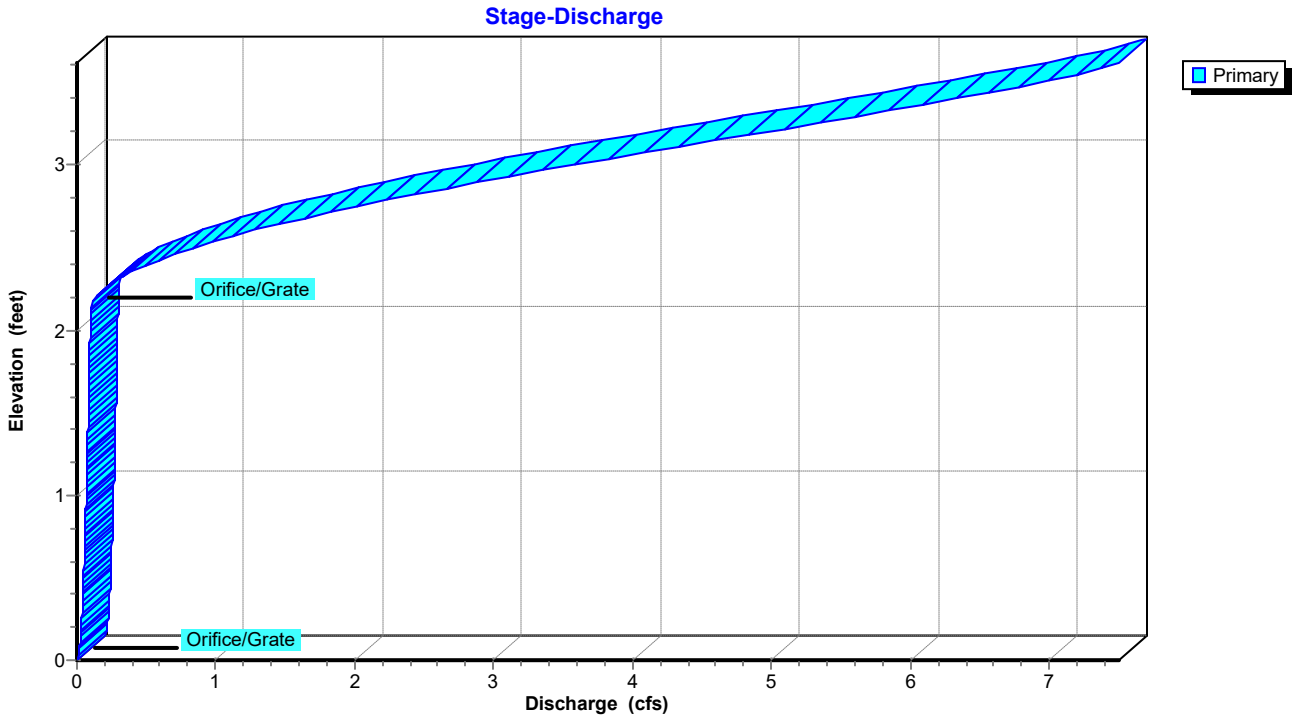
Device	Routing	Invert	Outlet Devices		
#1	Primary	0.00'	**1.6" Horiz. Orifice/Grate**	C= 0.600	Limited to weir flow at low heads
#2	Primary	2.12'	**18.0" Vert. Orifice/Grate**	C= 0.600	

Primary OutFlow Max=0.08 cfs @ 3.37 hrs HW=1.34' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.08 cfs @ 5.58 fps)
└**2=Orifice/Grate** (Controls 0.00 cfs)

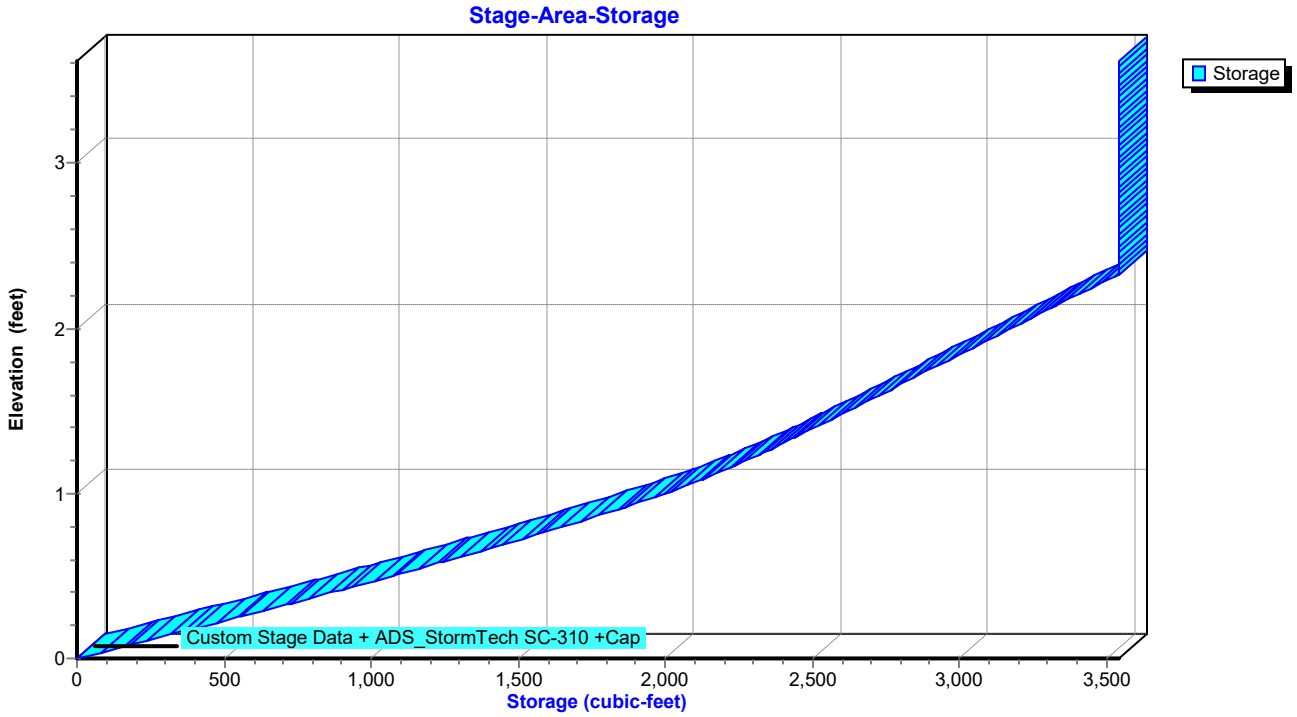
Pond 1P: SC-310 Chambers



Pond 1P: SC-310 Chambers



Pond 1P: SC-310 Chambers



Hydrograph for Pond 1P: SC-310 Chambers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	0.00	0.00
1.00	**0.36**	339	0.15	0.03
2.00	**0.26**	1,808	0.89	0.06
3.00	0.18	**2,344**	**1.25**	**0.08**
4.00	0.00	**2,298**	**1.22**	**0.07**
5.00	0.00	2,042	1.03	0.07
6.00	0.00	1,806	0.89	0.06
7.00	0.00	1,586	0.76	0.06
8.00	0.00	1,383	0.66	0.05
9.00	0.00	1,194	0.56	0.05
10.00	0.00	1,020	0.47	0.05
11.00	0.00	861	0.40	0.04
12.00	0.00	715	0.33	0.04
13.00	0.00	584	0.27	0.03
14.00	0.00	466	0.21	0.03
15.00	0.00	361	0.16	0.03
16.00	0.00	270	0.12	0.02
17.00	0.00	192	0.09	0.02
18.00	0.00	129	0.06	0.01
19.00	0.00	85	0.04	0.01
20.00	0.00	56	0.03	0.01
21.00	0.00	37	0.02	0.00
22.00	0.00	24	0.01	0.00
23.00	0.00	16	0.01	0.00
24.00	0.00	10	0.00	0.00
25.00	0.00	7	0.00	0.00
26.00	0.00	4	0.00	0.00
27.00	0.00	3	0.00	0.00
28.00	0.00	2	0.00	0.00
29.00	0.00	1	0.00	0.00
30.00	0.00	1	0.00	0.00
31.00	0.00	1	0.00	0.00
32.00	0.00	0	0.00	0.00
33.00	0.00	0	0.00	0.00
34.00	0.00	0	0.00	0.00
35.00	0.00	0	0.00	0.00
36.00	0.00	0	0.00	0.00
37.00	0.00	0	0.00	0.00
38.00	0.00	0	0.00	0.00
39.00	0.00	0	0.00	0.00
40.00	0.00	0	0.00	0.00
41.00	0.00	0	0.00	0.00
42.00	0.00	0	0.00	0.00
43.00	0.00	0	0.00	0.00
44.00	0.00	0	0.00	0.00
45.00	0.00	0	0.00	0.00
46.00	0.00	0	0.00	0.00
47.00	0.00	0	0.00	0.00
48.00	0.00	0	0.00	0.00
49.00	0.00	0	0.00	0.00
50.00	0.00	0	0.00	0.00

Stage-Discharge for Pond 1P: SC-310 Chambers

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	1.04	0.07	2.08	0.10	3.12	4.38
0.02	0.00	1.06	0.07	2.10	0.10	3.14	4.52
0.04	0.01	1.08	0.07	2.12	0.10	3.16	4.66
0.06	0.02	1.10	0.07	2.14	0.10	3.18	4.80
0.08	0.02	1.12	0.07	2.16	0.11	3.20	4.94
0.10	0.02	1.14	0.07	2.18	0.12	3.22	5.08
0.12	0.02	1.16	0.07	2.20	0.13	3.24	5.22
0.14	0.03	1.18	0.07	2.22	0.15	3.26	5.36
0.16	0.03	1.20	0.07	2.24	0.18	3.28	5.50
0.18	0.03	1.22	0.07	2.26	0.21	3.30	5.64
0.20	0.03	1.24	0.07	2.28	0.24	3.32	5.77
0.22	0.03	1.26	0.08	2.30	0.28	3.34	5.91
0.24	0.03	1.28	0.08	2.32	0.32	3.36	6.05
0.26	0.03	1.30	0.08	2.34	0.36	3.38	6.18
0.28	0.04	1.32	0.08	2.36	0.41	3.40	6.31
0.30	0.04	1.34	0.08	2.38	0.46	3.42	6.44
0.32	0.04	1.36	0.08	2.40	0.51	3.44	6.57
0.34	0.04	1.38	0.08	2.42	0.57	3.46	6.69
0.36	0.04	1.40	0.08	2.44	0.64	3.48	6.81
0.38	0.04	1.42	0.08	2.46	0.70	3.50	6.93
0.40	0.04	1.44	0.08	2.48	0.77	3.52	7.04
0.42	0.04	1.46	0.08	2.50	0.85	3.54	7.15
0.44	0.04	1.48	0.08	2.52	0.92	3.56	7.25
0.46	0.05	1.50	0.08	2.54	1.00	3.58	7.34
0.48	0.05	1.52	0.08	2.56	1.08	3.60	7.43
0.50	0.05	1.54	0.08	2.58	1.17	3.62	**7.50**
0.52	0.05	1.56	0.08	2.60	1.26		
0.54	0.05	1.58	0.08	2.62	1.35		
0.56	0.05	1.60	0.09	2.64	1.44		
0.58	0.05	1.62	0.09	2.66	1.54		
0.60	0.05	1.64	0.09	2.68	1.64		
0.62	0.05	1.66	0.09	2.70	1.75		
0.64	0.05	1.68	0.09	2.72	1.85		
0.66	0.05	1.70	0.09	2.74	1.96		
0.68	0.06	1.72	0.09	2.76	2.07		
0.70	0.06	1.74	0.09	2.78	2.18		
0.72	0.06	1.76	0.09	2.80	2.30		
0.74	0.06	1.78	0.09	2.82	2.42		
0.76	0.06	1.80	0.09	2.84	2.54		
0.78	0.06	1.82	0.09	2.86	2.66		
0.80	0.06	1.84	0.09	2.88	2.78		
0.82	0.06	1.86	0.09	2.90	2.91		
0.84	0.06	1.88	0.09	2.92	3.03		
0.86	0.06	1.90	0.09	2.94	3.16		
0.88	0.06	1.92	0.09	2.96	3.29		
0.90	0.06	1.94	0.09	2.98	3.42		
0.92	0.06	1.96	0.09	3.00	3.56		
0.94	0.07	1.98	0.09	3.02	3.69		
0.96	0.07	2.00	0.10	3.04	3.83		
0.98	0.07	2.02	0.10	3.06	3.96		
1.00	0.07	2.04	0.10	3.08	4.10		
1.02	0.07	2.06	0.10	3.10	4.24		

Stage-Area-Storage for Pond 1P: SC-310 Chambers

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
0.00	0	2.60	3,542
0.05	111	2.65	3,542
0.10	222	2.70	3,542
0.15	332	2.75	3,542
0.20	441	2.80	3,542
0.25	549	2.85	3,542
0.30	656	2.90	3,542
0.35	762	2.95	3,542
0.40	867	3.00	3,542
0.45	971	3.05	3,542
0.50	1,073	3.10	3,542
0.55	1,174	3.15	3,542
0.60	1,274	3.20	3,542
0.65	1,372	3.25	3,542
0.70	1,468	3.30	3,542
0.75	1,562	3.35	3,542
0.80	1,654	3.40	3,542
0.85	1,744	3.45	3,542
0.90	1,832	3.50	3,542
0.95	1,916	3.55	3,542
1.00	1,998	3.60	3,542
1.05	2,075		
1.10	2,147		
1.15	2,215		
1.20	2,278		
1.25	2,339		
1.30	2,398		
1.35	2,454		
1.40	2,509		
1.45	2,565		
1.50	2,620		
1.55	2,676		
1.60	2,731		
1.65	2,787		
1.70	2,842		
1.75	2,898		
1.80	2,953		
1.85	3,009		
1.90	3,064		
1.95	3,120		
2.00	3,175		
2.05	3,231		
2.10	3,286		
2.15	3,342		
2.20	3,397		
2.25	3,453		
2.30	**3,508**		
2.35	**3,542**		
2.40	3,542		
2.45	3,542		
2.50	3,542		
2.55	3,542		

Time span=0.00-50.00 hrs, dt=0.05 hrs, 1001 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Post Developed Runoff Area=54,860 sf 89.80% Impervious Runoff Depth=0.84"
Tc=5.0 min CN=79/98 Runoff=1.38 cfs 0.089 af

Subcatchment 2S: Undeveloped Runoff Area=54,860 sf 0.00% Impervious Runoff Depth=0.27"
Tc=5.0 min CN=86/0 Runoff=0.22 cfs 0.029 af

Pond 1P: SC-310 Chambers Peak Elev=2.05' Storage=3,229 cf Inflow=1.38 cfs 0.089 af
Outflow=0.10 cfs 0.089 af

Total Runoff Area = 2.519 ac Runoff Volume = 0.117 af Average Runoff Depth = 0.56"
55.10% Pervious = 1.388 ac 44.90% Impervious = 1.131 ac

Summary for Subcatchment 1S: Post Developed

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

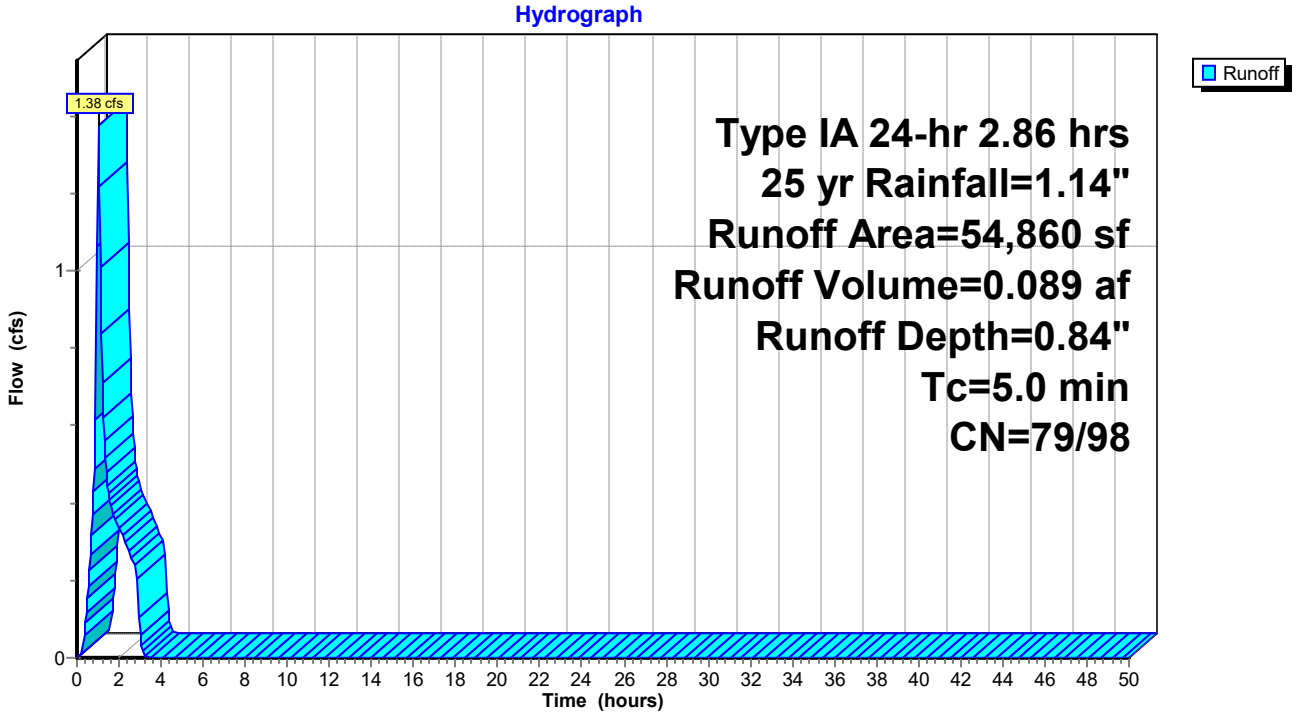
Runoff = 1.38 cfs @ 1.01 hrs, Volume= 0.089 af, Depth= 0.84"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2.86 hrs 25 yr Rainfall=1.14"

	Area (sf)	CN	Description
*	49,266	98	Paved parking, Concrete, Roof
	5,594	79	50-75% Grass cover, Fair, HSG C
	54,860	96	Weighted Average
	5,594	79	10.20% Pervious Area
	49,266	98	89.80% Impervious Area

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

Subcatchment 1S: Post Developed



Hydrograph for Subcatchment 1S: Post Developed

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
1.00	0.54	0.00	0.35	**1.37**
2.00	**0.94**	**0.05**	**0.73**	0.34
3.00	**1.14**	**0.11**	**0.93**	0.06
4.00	1.14	0.11	0.93	0.00
5.00	1.14	0.11	0.93	0.00
6.00	1.14	0.11	0.93	0.00
7.00	1.14	0.11	0.93	0.00
8.00	1.14	0.11	0.93	0.00
9.00	1.14	0.11	0.93	0.00
10.00	1.14	0.11	0.93	0.00
11.00	1.14	0.11	0.93	0.00
12.00	1.14	0.11	0.93	0.00
13.00	1.14	0.11	0.93	0.00
14.00	1.14	0.11	0.93	0.00
15.00	1.14	0.11	0.93	0.00
16.00	1.14	0.11	0.93	0.00
17.00	1.14	0.11	0.93	0.00
18.00	1.14	0.11	0.93	0.00
19.00	1.14	0.11	0.93	0.00
20.00	1.14	0.11	0.93	0.00
21.00	1.14	0.11	0.93	0.00
22.00	1.14	0.11	0.93	0.00
23.00	1.14	0.11	0.93	0.00
24.00	1.14	0.11	0.93	0.00
25.00	1.14	0.11	0.93	0.00
26.00	1.14	0.11	0.93	0.00
27.00	1.14	0.11	0.93	0.00
28.00	1.14	0.11	0.93	0.00
29.00	1.14	0.11	0.93	0.00
30.00	1.14	0.11	0.93	0.00
31.00	1.14	0.11	0.93	0.00
32.00	1.14	0.11	0.93	0.00
33.00	1.14	0.11	0.93	0.00
34.00	1.14	0.11	0.93	0.00
35.00	1.14	0.11	0.93	0.00
36.00	1.14	0.11	0.93	0.00
37.00	1.14	0.11	0.93	0.00
38.00	1.14	0.11	0.93	0.00
39.00	1.14	0.11	0.93	0.00
40.00	1.14	0.11	0.93	0.00
41.00	1.14	0.11	0.93	0.00
42.00	1.14	0.11	0.93	0.00
43.00	1.14	0.11	0.93	0.00
44.00	1.14	0.11	0.93	0.00
45.00	1.14	0.11	0.93	0.00
46.00	1.14	0.11	0.93	0.00
47.00	1.14	0.11	0.93	0.00
48.00	1.14	0.11	0.93	0.00
49.00	1.14	0.11	0.93	0.00
50.00	1.14	0.11	0.93	0.00

Summary for Subcatchment 2S: Undeveloped

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

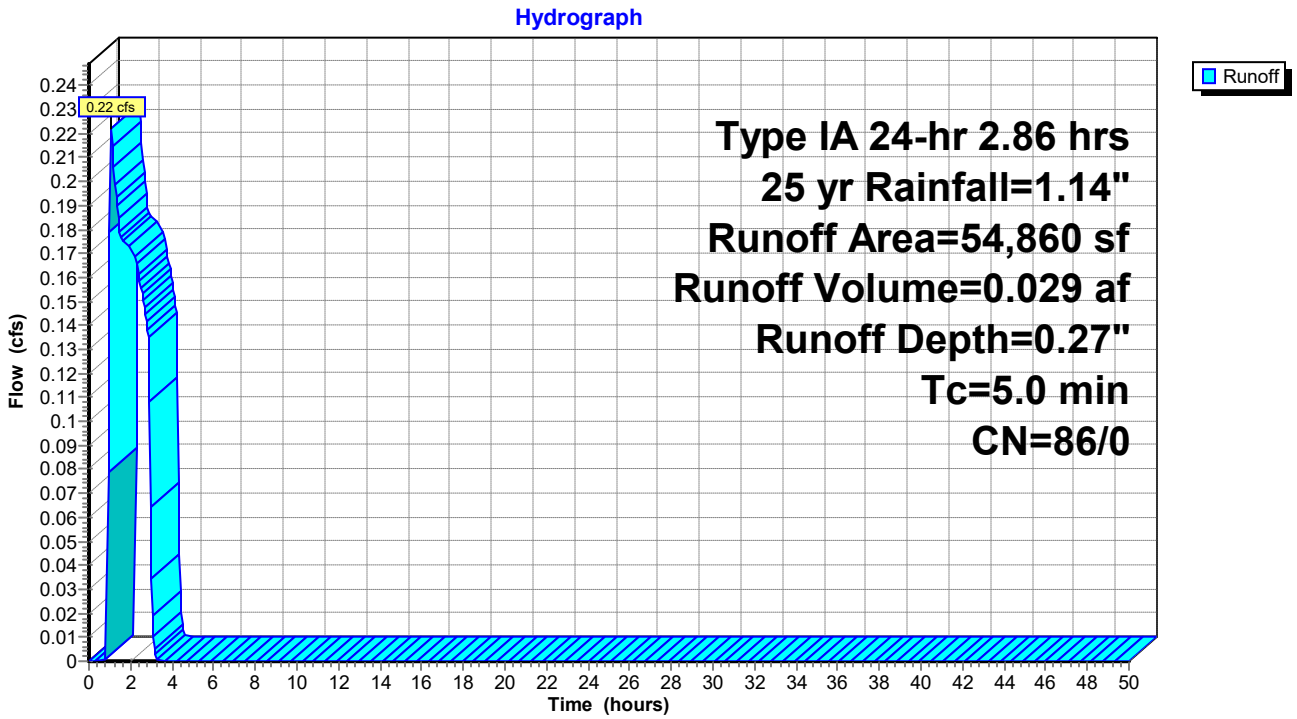
Runoff = 0.22 cfs @ 1.09 hrs, Volume= 0.029 af, Depth= 0.27"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2.86 hrs 25 yr Rainfall=1.14"

Area (sf)	CN	Description
54,860	86	<50% Grass cover, Poor, HSG C
54,860	86	100.00% Pervious Area

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

Subcatchment 2S: Undeveloped



Hydrograph for Subcatchment 2S: Undeveloped

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
1.00	0.54	0.02	0.00	**0.18**
2.00	**0.94**	**0.17**	0.00	**0.17**
3.00	**1.14**	**0.27**	0.00	0.03
4.00	1.14	0.27	0.00	0.00
5.00	1.14	0.27	0.00	0.00
6.00	1.14	0.27	0.00	0.00
7.00	1.14	0.27	0.00	0.00
8.00	1.14	0.27	0.00	0.00
9.00	1.14	0.27	0.00	0.00
10.00	1.14	0.27	0.00	0.00
11.00	1.14	0.27	0.00	0.00
12.00	1.14	0.27	0.00	0.00
13.00	1.14	0.27	0.00	0.00
14.00	1.14	0.27	0.00	0.00
15.00	1.14	0.27	0.00	0.00
16.00	1.14	0.27	0.00	0.00
17.00	1.14	0.27	0.00	0.00
18.00	1.14	0.27	0.00	0.00
19.00	1.14	0.27	0.00	0.00
20.00	1.14	0.27	0.00	0.00
21.00	1.14	0.27	0.00	0.00
22.00	1.14	0.27	0.00	0.00
23.00	1.14	0.27	0.00	0.00
24.00	1.14	0.27	0.00	0.00
25.00	1.14	0.27	0.00	0.00
26.00	1.14	0.27	0.00	0.00
27.00	1.14	0.27	0.00	0.00
28.00	1.14	0.27	0.00	0.00
29.00	1.14	0.27	0.00	0.00
30.00	1.14	0.27	0.00	0.00
31.00	1.14	0.27	0.00	0.00
32.00	1.14	0.27	0.00	0.00
33.00	1.14	0.27	0.00	0.00
34.00	1.14	0.27	0.00	0.00
35.00	1.14	0.27	0.00	0.00
36.00	1.14	0.27	0.00	0.00
37.00	1.14	0.27	0.00	0.00
38.00	1.14	0.27	0.00	0.00
39.00	1.14	0.27	0.00	0.00
40.00	1.14	0.27	0.00	0.00
41.00	1.14	0.27	0.00	0.00
42.00	1.14	0.27	0.00	0.00
43.00	1.14	0.27	0.00	0.00
44.00	1.14	0.27	0.00	0.00
45.00	1.14	0.27	0.00	0.00
46.00	1.14	0.27	0.00	0.00
47.00	1.14	0.27	0.00	0.00
48.00	1.14	0.27	0.00	0.00
49.00	1.14	0.27	0.00	0.00
50.00	1.14	0.27	0.00	0.00

Summary for Pond 1P: SC-310 Chambers

Inflow Area = 1.259 ac, 89.80% Impervious, Inflow Depth = 0.84" for 25 yr event
Inflow = 1.38 cfs @ 1.01 hrs, Volume= 0.089 af
Outflow = 0.10 cfs @ 2.96 hrs, Volume= 0.089 af, Atten= 93%, Lag= 117.3 min
Primary = 0.10 cfs @ 2.96 hrs, Volume= 0.089 af

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 2.05' @ 2.96 hrs Surf.Area= 2,775 sf Storage= 3,229 cf

Plug-Flow detention time= 429.6 min calculated for 0.089 af (100% of inflow)
Center-of-Mass det. time= 429.1 min (519.6 - 90.5)

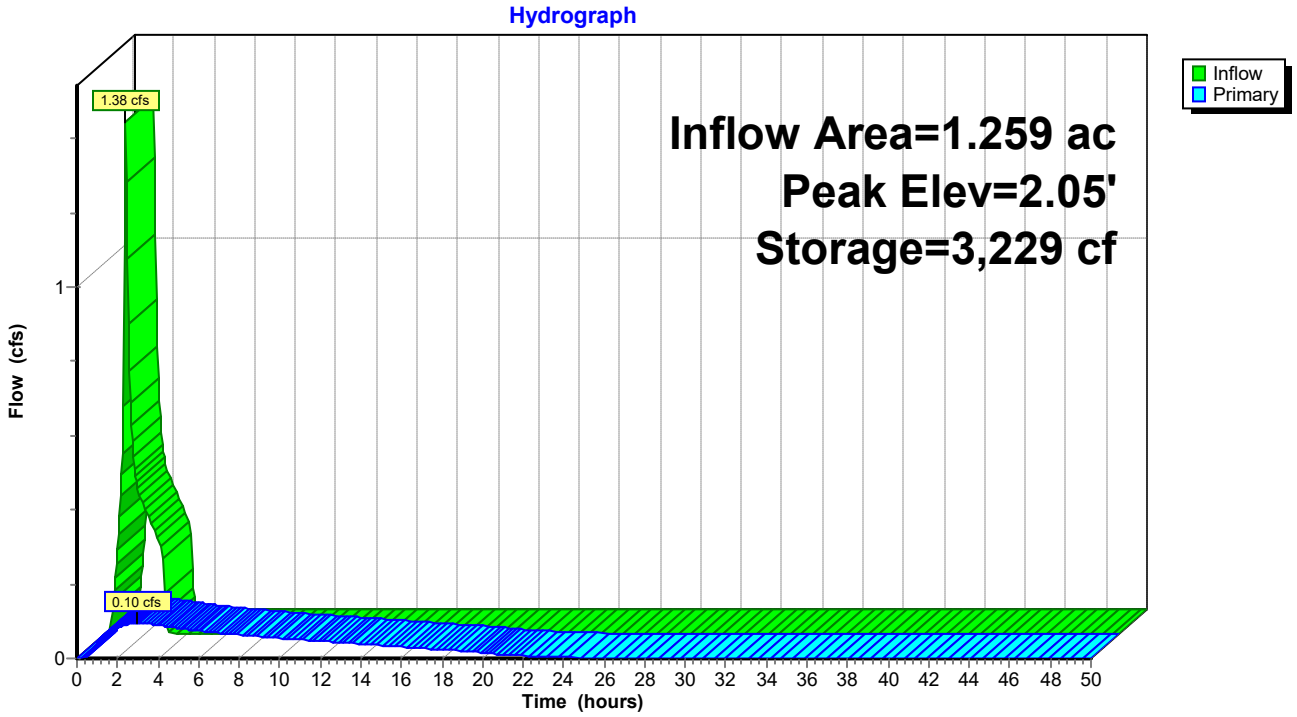
Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	1,949 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 6,466 cf Overall - 1,592 cf Embedded = 4,874 cf x 40.0% Voids
#2	0.00'	1,592 cf	**ADS_StormTech SC-310 +Cap** x 108 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 108 Chambers in 10 Rows
		3,542 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	2,775	0	0
2.33	2,775	6,466	6,466

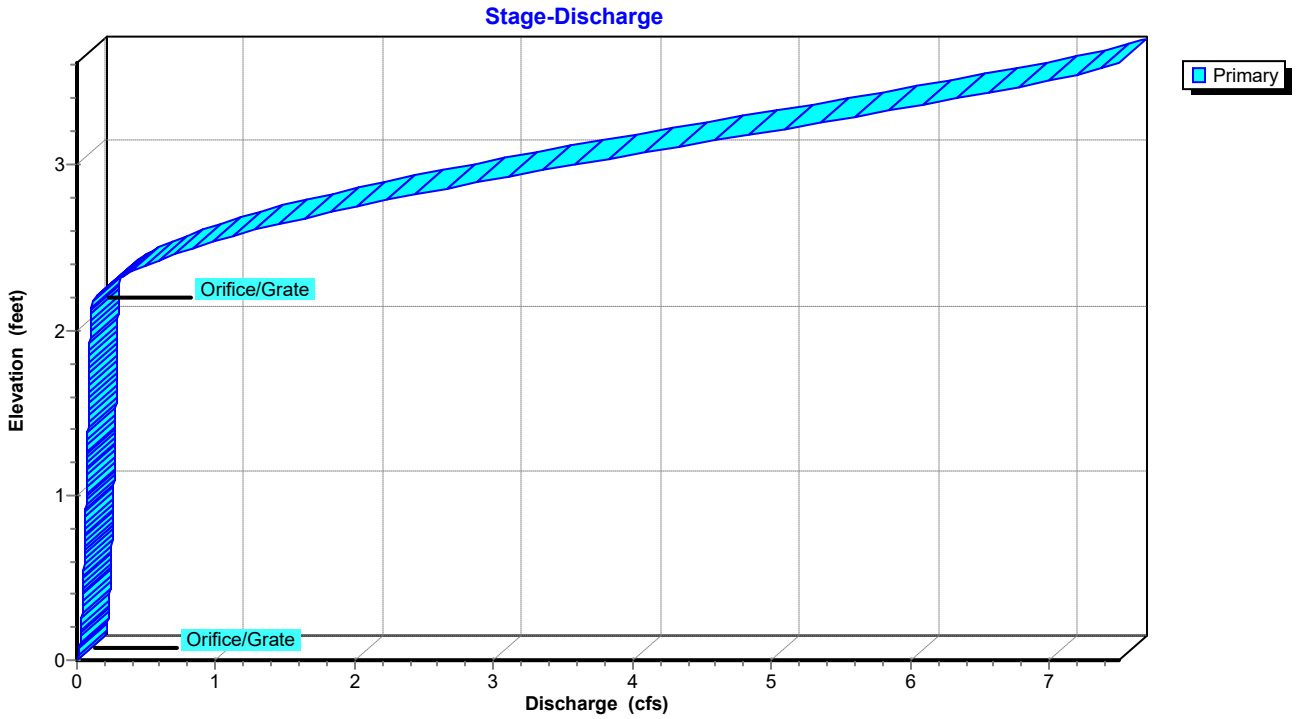
Device	Routing	Invert	Outlet Devices		
#1	Primary	0.00'	**1.6" Horiz. Orifice/Grate**	C= 0.600	Limited to weir flow at low heads
#2	Primary	2.12'	**18.0" Vert. Orifice/Grate**	C= 0.600	

Primary OutFlow Max=0.10 cfs @ 2.96 hrs HW=2.05' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.10 cfs @ 6.89 fps)
└—**2=Orifice/Grate** (Controls 0.00 cfs)

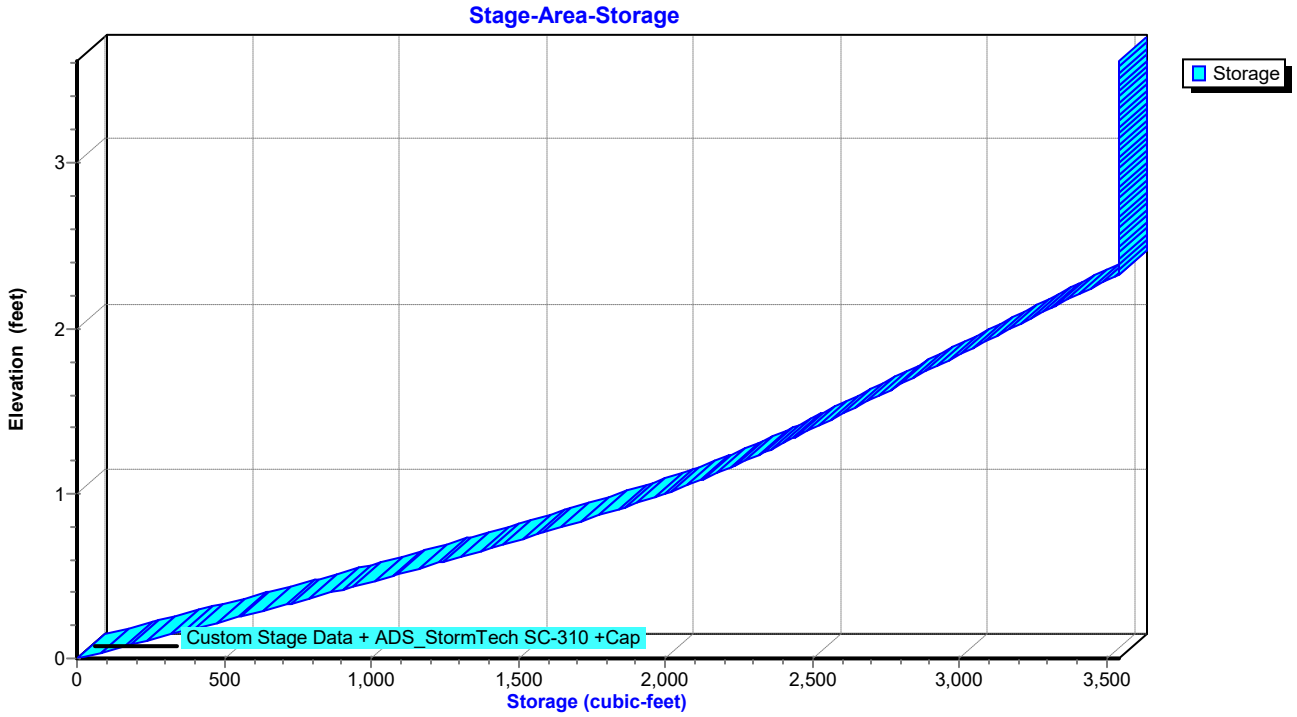
Pond 1P: SC-310 Chambers



Pond 1P: SC-310 Chambers



Pond 1P: SC-310 Chambers



Hydrograph for Pond 1P: SC-310 Chambers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	0.00	0.00
1.00	**1.37**	875	0.40	0.04
2.00	0.34	**2,616**	**1.50**	**0.08**
3.00	0.06	**3,226**	**2.05**	**0.10**
4.00	0.00	2,909	1.76	0.09
5.00	0.00	2,601	1.48	0.08
6.00	0.00	2,319	1.23	0.07
7.00	0.00	2,062	1.04	0.07
8.00	0.00	1,824	0.90	0.06
9.00	0.00	1,603	0.77	0.06
10.00	0.00	1,399	0.66	0.05
11.00	0.00	1,209	0.57	0.05
12.00	0.00	1,034	0.48	0.05
13.00	0.00	873	0.40	0.04
14.00	0.00	727	0.33	0.04
15.00	0.00	594	0.27	0.03
16.00	0.00	475	0.22	0.03
17.00	0.00	369	0.17	0.03
18.00	0.00	277	0.13	0.02
19.00	0.00	198	0.09	0.02
20.00	0.00	133	0.06	0.02
21.00	0.00	88	0.04	0.01
22.00	0.00	58	0.03	0.01
23.00	0.00	38	0.02	0.00
24.00	0.00	25	0.01	0.00
25.00	0.00	16	0.01	0.00
26.00	0.00	11	0.00	0.00
27.00	0.00	7	0.00	0.00
28.00	0.00	5	0.00	0.00
29.00	0.00	3	0.00	0.00
30.00	0.00	2	0.00	0.00
31.00	0.00	1	0.00	0.00
32.00	0.00	1	0.00	0.00
33.00	0.00	1	0.00	0.00
34.00	0.00	0	0.00	0.00
35.00	0.00	0	0.00	0.00
36.00	0.00	0	0.00	0.00
37.00	0.00	0	0.00	0.00
38.00	0.00	0	0.00	0.00
39.00	0.00	0	0.00	0.00
40.00	0.00	0	0.00	0.00
41.00	0.00	0	0.00	0.00
42.00	0.00	0	0.00	0.00
43.00	0.00	0	0.00	0.00
44.00	0.00	0	0.00	0.00
45.00	0.00	0	0.00	0.00
46.00	0.00	0	0.00	0.00
47.00	0.00	0	0.00	0.00
48.00	0.00	0	0.00	0.00
49.00	0.00	0	0.00	0.00
50.00	0.00	0	0.00	0.00

Stage-Discharge for Pond 1P: SC-310 Chambers

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	1.04	0.07	2.08	0.10	3.12	4.38
0.02	0.00	1.06	0.07	2.10	0.10	3.14	4.52
0.04	0.01	1.08	0.07	2.12	0.10	3.16	4.66
0.06	0.02	1.10	0.07	2.14	0.10	3.18	4.80
0.08	0.02	1.12	0.07	2.16	0.11	3.20	4.94
0.10	0.02	1.14	0.07	2.18	0.12	3.22	5.08
0.12	0.02	1.16	0.07	2.20	0.13	3.24	5.22
0.14	0.03	1.18	0.07	2.22	0.15	3.26	5.36
0.16	0.03	1.20	0.07	2.24	0.18	3.28	5.50
0.18	0.03	1.22	0.07	2.26	0.21	3.30	5.64
0.20	0.03	1.24	0.07	2.28	0.24	3.32	5.77
0.22	0.03	1.26	0.08	2.30	0.28	3.34	5.91
0.24	0.03	1.28	0.08	2.32	0.32	3.36	6.05
0.26	0.03	1.30	0.08	2.34	0.36	3.38	6.18
0.28	0.04	1.32	0.08	2.36	0.41	3.40	6.31
0.30	0.04	1.34	0.08	2.38	0.46	3.42	6.44
0.32	0.04	1.36	0.08	2.40	0.51	3.44	6.57
0.34	0.04	1.38	0.08	2.42	0.57	3.46	6.69
0.36	0.04	1.40	0.08	2.44	0.64	3.48	6.81
0.38	0.04	1.42	0.08	2.46	0.70	3.50	6.93
0.40	0.04	1.44	0.08	2.48	0.77	3.52	7.04
0.42	0.04	1.46	0.08	2.50	0.85	3.54	7.15
0.44	0.04	1.48	0.08	2.52	0.92	3.56	7.25
0.46	0.05	1.50	0.08	2.54	1.00	3.58	7.34
0.48	0.05	1.52	0.08	2.56	1.08	3.60	7.43
0.50	0.05	1.54	0.08	2.58	1.17	3.62	**7.50**
0.52	0.05	1.56	0.08	2.60	1.26		
0.54	0.05	1.58	0.08	2.62	1.35		
0.56	0.05	1.60	0.09	2.64	1.44		
0.58	0.05	1.62	0.09	2.66	1.54		
0.60	0.05	1.64	0.09	2.68	1.64		
0.62	0.05	1.66	0.09	2.70	1.75		
0.64	0.05	1.68	0.09	2.72	1.85		
0.66	0.05	1.70	0.09	2.74	1.96		
0.68	0.06	1.72	0.09	2.76	2.07		
0.70	0.06	1.74	0.09	2.78	2.18		
0.72	0.06	1.76	0.09	2.80	2.30		
0.74	0.06	1.78	0.09	2.82	2.42		
0.76	0.06	1.80	0.09	2.84	2.54		
0.78	0.06	1.82	0.09	2.86	2.66		
0.80	0.06	1.84	0.09	2.88	2.78		
0.82	0.06	1.86	0.09	2.90	2.91		
0.84	0.06	1.88	0.09	2.92	3.03		
0.86	0.06	1.90	0.09	2.94	3.16		
0.88	0.06	1.92	0.09	2.96	3.29		
0.90	0.06	1.94	0.09	2.98	3.42		
0.92	0.06	1.96	0.09	3.00	3.56		
0.94	0.07	1.98	0.09	3.02	3.69		
0.96	0.07	2.00	0.10	3.04	3.83		
0.98	0.07	2.02	0.10	3.06	3.96		
1.00	0.07	2.04	0.10	3.08	4.10		
1.02	0.07	2.06	0.10	3.10	4.24		

Stage-Area-Storage for Pond 1P: SC-310 Chambers

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
0.00	0	2.60	3,542
0.05	111	2.65	3,542
0.10	222	2.70	3,542
0.15	332	2.75	3,542
0.20	441	2.80	3,542
0.25	549	2.85	3,542
0.30	656	2.90	3,542
0.35	762	2.95	3,542
0.40	867	3.00	3,542
0.45	971	3.05	3,542
0.50	1,073	3.10	3,542
0.55	1,174	3.15	3,542
0.60	1,274	3.20	3,542
0.65	1,372	3.25	3,542
0.70	1,468	3.30	3,542
0.75	1,562	3.35	3,542
0.80	1,654	3.40	3,542
0.85	1,744	3.45	3,542
0.90	1,832	3.50	3,542
0.95	1,916	3.55	3,542
1.00	1,998	3.60	3,542
1.05	2,075		
1.10	2,147		
1.15	2,215		
1.20	2,278		
1.25	2,339		
1.30	2,398		
1.35	2,454		
1.40	2,509		
1.45	2,565		
1.50	2,620		
1.55	2,676		
1.60	2,731		
1.65	2,787		
1.70	2,842		
1.75	2,898		
1.80	2,953		
1.85	3,009		
1.90	3,064		
1.95	3,120		
2.00	3,175		
2.05	3,231		
2.10	3,286		
2.15	3,342		
2.20	3,397		
2.25	3,453		
2.30	**3,508**		
2.35	**3,542**		
2.40	3,542		
2.45	3,542		
2.50	3,542		
2.55	3,542		

APPENDIX A - RAINFALL INTENSITY - DURATION - RECURRENCE INTERVAL CURVES

1.0 Derivation of Curves

The Rainfall Intensity - Duration - Recurrence Interval (I-D-R) curves were computed in accordance with the method described in the 1973 NOAA Atlas 2 titled "Precipitation-Frequency Atlas of the Western United States, Volume X-Oregon." A regional rainfall analysis was made by comparing rainfall data for 136 cities and areas, and thirteen zones were established that have similar rainfall intensities. A set of I-D-R curves were calculated for each zone and the curves represent average values for that zone.

2.0 Use of Curves

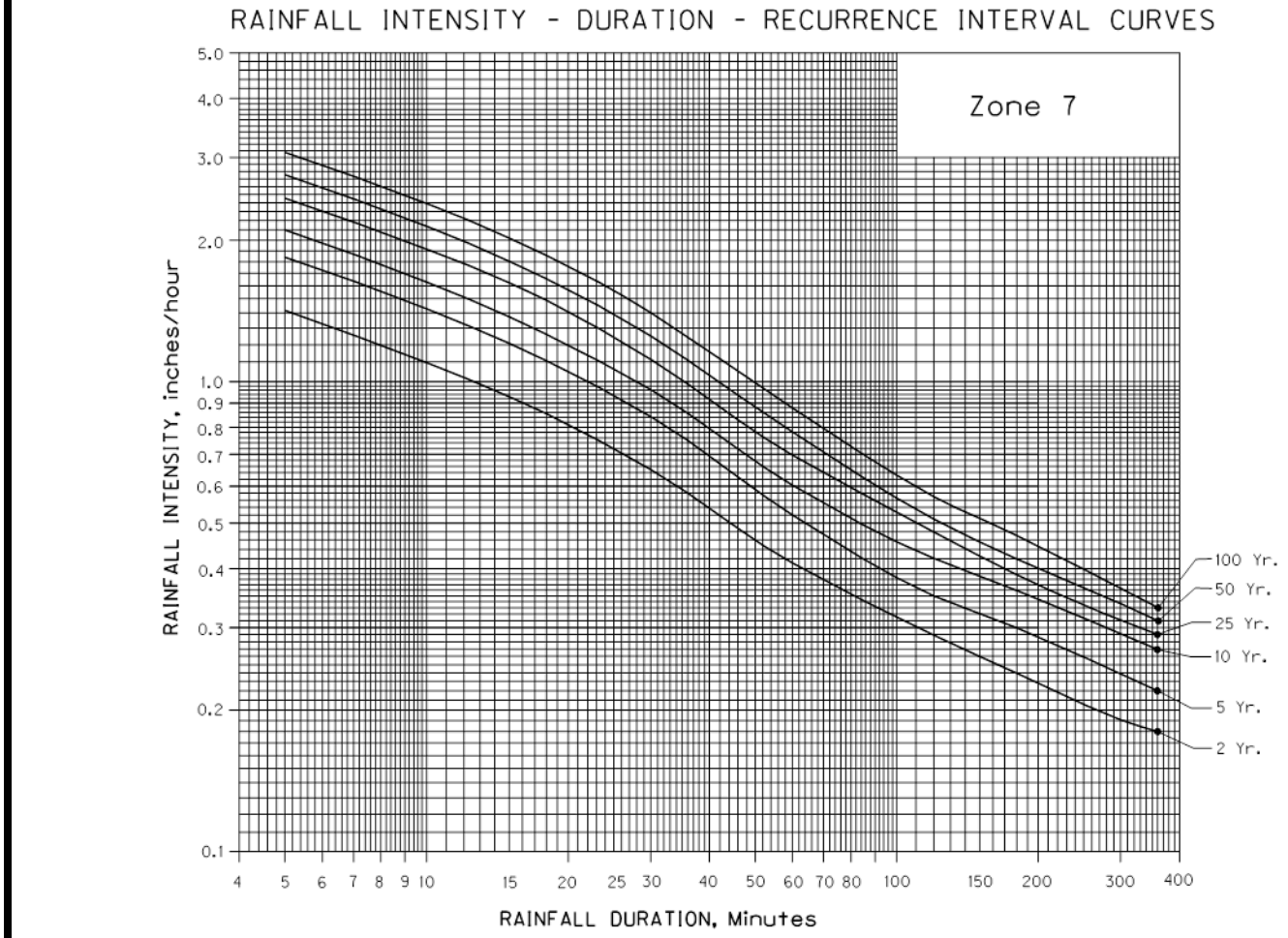
The first step is to determine the zone in which the project is located. This can be accomplished by either using the enclosed map that shows the various zones or the alphabetical listing of cities and their corresponding zones. When the proper zone is located, the I-D-R curves for that zone will provide the needed rainfall intensities. The designer must use engineering judgement in selecting the proper zone if the proposed project lies within two zones or is on or near a dividing line. The zone with larger intensity should be used if no personal knowledge of the area is available, as this gives the most conservative design.

Note: Rainfall Zone Map and Rainfall Zone Map with Highway Milepoints are in pdf formats.

TABLE 1: INDEX TO RAINFALL INTENSITY-DURATION-RECURRENCE INTERVAL CURVES

City	Zone
-T-	
The Dalles	11
Tidewater	4
Tillamook	2
Tiller	6
Toledo	2
-U-	
Union	13
Union Creek	3
Umatilla	13
-V-	
Vale	13
Veneta	5
Vernonia	8
Vida	5
-W-	
Wagontire	13
Waldport	2
Wallowa	10
Willamina	8
Wilsonville	7
Woodburn	7

City	Zone
-Y-	
Yachats	2
Yamhill	8


RAINFALL INTENSITY - DURATION - RECURRENCE INTERVAL CURVES
Zone 7
RAINFALL INTENSITY, inches/hour
5.0
4.0
3.0
2.0
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
4 5 6 7 8 9 10 15 20 25 30 40 50 60 70 80 100 150 200 300 400
RAINFALL DURATION, Minutes
100 Yr.
50 Yr.
25 Yr.
10 Yr.
5 Yr.
2 Yr.

Project Name: 119 Pacific Highway Design Frequency: 25yr Designed By: JMS Date: 2/27/2023

Project #: A21194.10 Checked By: NWS

Upstream Structure	downstream Structure	Area (A) sqft	Area (A) acres	Runoff Coeff. (c)	Equiv. Area (cA) acres	Total Drainage Area (cA) acres	Time of Concent. Or Flow Time (t) min	Total Time of Concent. (T) min	Average Rainfall Intensity (I) in/hr	Design Discharge (Q) cfs	IE (in) ft	IE (out) ft	Pipe Length (L) ft	Min. Invert Slope (s) %	Pipe Size (D) in	Capacity Flowing Full (Q) cfs	Velocity Flowing Full (V) fps	Flow Time (t) min
RD-01	A	684.5	0.016	0.90	0.014	0.014	5.0	5.0	2.45	0.035	187.10	186.84	54.00	0.5%	6	0.39	1.99	0.5
RD-02	A	684.5	0.016	0.90	0.014	0.014	5.0	5.0	2.45	0.035	187.10	186.84	3.00	8.7%	6	1.66	8.43	0.0
A	B	[redacted]	0.000	0.90	0.000	0.028	5.0	5.0	2.45	0.069	186.84	186.68	33.00	0.5%	6	0.39	1.99	0.3
RD-03	B	684.5	0.016	0.90	0.014	0.014	5.0	5.0	2.45	0.035	187.10	186.68	4.00	10.5%	6	1.82	9.28	0.0
B	CO-09	[redacted]	0.000	0.90	0.000	0.042	5.0	5.0	2.45	0.104	186.68	186.58	20.00	0.5%	6	0.40	2.02	0.2
RD-04	CO-09	684.5	0.016	0.90	0.014	0.014	5.0	5.0	2.45	0.035	187.10	186.58	3.00	17.3%	6	2.34	11.92	0.0
CO-09	C	[redacted]	0.000	0.90	0.000	0.057	5.0	5.0	2.45	0.139	186.58	186.39	37.00	0.5%	6	0.40	2.05	0.3
RD-05	C	684.5	0.016	0.90	0.014	0.014	5.0	5.0	2.45	0.035	187.10	186.39	3.00	23.7%	6	2.74	13.93	0.0
C	D	[redacted]	0.000	0.90	0.000	0.071	5.0	5.0	2.45	0.173	186.39	186.33	13.00	0.5%	6	0.38	1.95	0.1
RD-06	D	684.5	0.016	0.90	0.014	0.014	5.0	5.0	2.45	0.035	187.10	186.33	3.00	25.7%	6	2.85	14.51	0.0
D	CO-08	[redacted]	0.000	0.90	0.000	0.085	5.0	5.0	2.45	0.208	186.33	186.15	37.00	0.5%	6	0.39	2.00	0.3
RD-07	CO-08	684.5	0.016	0.90	0.014	0.014	5.0	5.0	2.45	0.035	187.10	186.15	3.00	31.7%	6	3.16	16.11	0.0
CO-08	E	[redacted]	0.000	0.90	0.000	0.099	5.0	5.0	2.45	0.243	186.15	186.03	25.00	0.5%	6	0.39	1.98	0.2
RD-08	E	684.5	0.016	0.90	0.014	0.014	5.0	5.0	2.45	0.035	187.10	186.03	4.00	26.7%	6	2.91	14.81	0.0
E	F	[redacted]	0.000	0.90	0.000	0.113	5.0	5.0	2.45	0.277	186.03	185.93	21.00	0.5%	6	0.39	1.98	0.2
RD-09	F	684.5	0.016	0.90	0.014	0.014	5.0	5.0	2.45	0.035	187.10	185.93	3.00	39.0%	6	3.51	17.88	0.0
F	CO-07	[redacted]	0.000	0.90	0.000	0.127	5.0	5.0	2.45	0.312	185.93	185.76	34.00	0.5%	6	0.40	2.02	0.3
RD-10	CO-07	684.5	0.016	0.90	0.014	0.014	5.0	5.0	2.45	0.035	187.10	185.76	3.00	44.7%	6	3.76	19.14	0.0
CO-07	G	[redacted]	0.000	0.90	0.000	0.141	5.0	5.0	2.45	0.346	185.76	185.60	34.00	0.5%	6	0.39	1.96	0.3
RD-11	G	684.5	0.016	0.90	0.014	0.014	5.0	5.0	2.45	0.035	187.10	185.60	3.00	50.0%	6	3.98	20.25	0.0
G	H	[redacted]	0.000	0.90	0.000	0.156	5.0	5.0	2.45	0.381	185.60	185.43	34.00	0.5%	6	0.40	2.02	0.3
RD-12	H	684.5	0.016	0.90	0.014	0.014	5.0	5.0	2.45	0.035	187.10	185.43	3.00	55.7%	6	4.19	21.36	0.0
H	I	[redacted]	0.000	0.90	0.000	0.170	5.0	5.0	2.45	0.416	185.43	185.20	47.00	0.5%	8	0.85	2.43	0.3
[redacted]																		
RD-16	J	684.5	0.016	0.90	0.014	0.170	5.0	5.0	2.45	0.416	187.10	186.63	25.00	1.9%	6	0.77	3.93	0.1

Project Name: 119 Pacific Highway Design Frequency: 25yr Designed By: JMS Date: 2/27/2023

Project #: A21194.10 Checked By: NWS

Upstream Structure	downstream Structure	Area (A) sqft	Area (A) acres	Runoff Coeff. (c)	Equiv. Area (cA) acres	Total Drainage Area (cA) acres	Time of Concent. Or Flow Time (t) min	Total Time of Concent. (T) min	Average Rainfall Intensity (I) in/hr	Design Discharge (Q) cfs	IE (in) ft	IE (out) ft	Pipe Length (L) ft	Min. Invert Slope (s) %	Pipe Size (D) in	Capacity Flowing Full (Q) cfs	Velocity Flowing Full (V) fps	Flow Time (t) min
RD-15	J	684.5	0.016	0.90	0.014	0.184	5.0	5.0	2.45	0.450	187.10	186.63	3.00	15.7%	6	2.23	11.33	0.0
J	K		0.000	0.90	0.000	0.354	5.0	5.0	2.45	0.866	186.63	186.12	27.00	1.9%	8	1.66	4.77	0.1
RD-14	K	684.5	0.016	0.90	0.014	0.014	5.0	5.0	2.45	0.035	187.10	186.12	3.00	32.7%	6	3.21	16.37	0.0
K	L		0.000	0.90	0.000	0.368	5.0	5.0	2.45	0.901	186.12	185.31	43.00	1.9%	8	1.66	4.76	0.2
RD-13	L	684.5	0.016	0.90	0.014	0.552	5.0	5.0	2.45	1.351	187.10	185.31	3.00	59.7%	6	4.34	22.12	0.0
L	I		0.000	0.90	0.000	0.919	5.0	5.0	2.45	2.252	185.31	185.20	6.00	1.8%	10	2.97	5.45	0.0
I	M		0.000	0.90	0.000	1.089	5.0	5.0	2.45	2.668	185.20	184.81	80.00	0.5%	18	7.35	4.16	0.3
CB-02	M	1688	0.039	0.90	0.035	0.035	5.0	5.0	2.45	0.085	185.22	184.81	7.00	5.9%	6	1.36	6.93	0.0
M	N		0.000	0.90	0.000	1.124	5.0	5.0	2.45	2.753	184.81	184.71	6.00	1.7%	18	13.59	7.69	0.0
CB-01	N	5215	0.120	0.90	0.108	0.108	5.0	5.0	2.45	0.264	184.84	184.71	27.00	0.5%	6	0.39	1.99	0.2
N	O		0.000	0.90	0.000	1.232	5.0	5.0	2.45	3.017	184.71	184.49	44.00	0.5%	18	7.45	4.21	0.2
CB-07	P	2449	0.056	0.90	0.051	0.051	5.0	5.0	2.45	0.124	185.09	184.61	96.00	0.5%	6	0.40	2.02	0.8
CB-03	P	1577	0.036	0.90	0.033	0.033	5.0	5.0	2.45	0.080	184.80	184.61	21.00	0.9%	6	0.53	2.72	0.1
P	O		0.000	0.90	0.000	0.083	5.0	5.0	2.45	0.204	184.61	184.49	25.00	0.5%	6	0.39	1.98	0.2
O	X		0.000	0.90	0.000	1.315	5.0	5.0	2.45	3.221	184.49	184.46	6.00	0.5%	18	7.45	4.21	0.0
RD-17	Q	684.5	0.016	0.90	0.014	0.014	5.0	5.0	2.45	0.035	187.10	186.88	25.00	0.9%	6	0.53	2.69	0.2
RD-18	Q	684.5	0.016	0.90	0.014	0.014	5.0	5.0	2.45	0.035	187.10	186.88	3.00	7.3%	6	1.52	7.75	0.0
Q	R		0.000	0.90	0.000	0.028	5.0	5.0	2.45	0.069	186.88	186.63	27.00	0.9%	6	0.54	2.76	0.2
RD-19	R	684.5	0.016	0.90	0.014	0.014	5.0	5.0	2.45	0.035	187.10	186.63	3.00	15.7%	6	2.23	11.33	0.0
R	S		0.000	0.90	0.000	0.042	5.0	5.0	2.45	0.104	186.63	186.43	24.00	0.8%	6	0.51	2.61	0.2

Project Name: 119 Pacific Highway Design Frequency: 25yr Designed By: JMS Date: 2/27/2023

Project #: A21194.10 Checked By: NWS

Upstream Structure	downstream Structure	Area (A) sqft	Area (A) acres	Runoff Coeff. (c)	Equiv. Area (cA) acres	Total Drainage Area (cA) acres	Time of Concent. Or Flow Time (t) min	Total Time of Concent. (T) min	Average Rainfall Intensity (I) in/hr	Design Discharge (Q) cfs	IE (in) ft	IE (out) ft	Pipe Length (L) ft	Min. Invert Slope (s) %	Pipe Size (D) in	Capacity Flowing Full (Q) cfs	Velocity Flowing Full (V) fps	Flow Time (t) min
RD-21	T	684.5	0.016	0.90	0.014	0.014	5.0	5.0	2.45	0.035	187.10	186.64	44.00	1.0%	6	0.57	2.93	0.3
RD-20	T	684.5	0.016	0.90	0.014	0.014	5.0	5.0	2.45	0.035	187.10	186.64	3.00	15.3%	6	2.20	11.21	0.0
T	S		0.000	0.90	0.000	0.028	5.0	5.0	2.45	0.069	186.64	186.43	20.00	1.0%	6	0.58	2.93	0.1
S	U		0.000	0.90	0.000	0.071	5.0	5.0	2.45	0.173	186.43	185.18	80.00	1.6%	6	0.70	3.58	0.4
CB-05	U	8226	0.189	0.90	0.170	0.170	5.0	5.0	2.45	0.416	185.28	185.18	21.00	0.5%	8	0.84	2.39	0.1
U	V		0.000	0.90	0.000	0.241	5.0	5.0	2.45	0.590	185.18	185.03	30.00	0.5%	8	0.86	2.45	0.2
CB-04	V	5978	0.137	0.90	0.124	0.124	5.0	5.0	2.45	0.303	185.06	185.03	5.00	0.6%	6	0.44	2.22	0.0
V	W		0.000	0.90	0.000	0.364	5.0	5.0	2.45	0.892	185.03	184.66	74.00	0.5%	10	1.55	2.85	0.4
CB-06	W	5978	0.137	0.90	0.124	0.124	5.0	5.0	2.45	0.303	184.69	184.66	6.00	0.5%	6	0.40	2.02	0.0
W	X		0.000	0.90	0.000	0.488	5.0	5.0	2.45	1.195	184.66	184.47	39.00	0.5%	10	1.53	2.81	0.2
X	MH-01		0.000	0.90	0.000	1.802	5.0	5.0	2.45	4.416	184.47	184.43	7.41	0.5%	18	7.74	4.38	0.0
MH-01	DET		0.000	0.90	0.000	1.802	5.0	5.0	2.45	4.416	184.43	184.40	5.50	0.5%	18	7.78	4.40	0.0
DET	FCMH-01		0.000	0.90	0.000	1.802	5.0	5.0	2.45	4.416	184.40	184.40	10.00	0.0%	18	1.05	0.60	0.3
FCMH-01	OUT		0.000	0.90	0.000	1.802	5.0	5.0	2.45	4.416	184.40	183.89	102.00	0.5%	18	7.45	4.21	0.4

119 N Pacific Hwy

Appendix E

Operations and Maintenance

Isolator® Row
O&M Manual

ADS StormTech™

The Isolator® Row

Introduction

An important component of any Stormwater Pollution Prevention Plan is inspection and maintenance. The StormTech Isolator Row is a technique to inexpensively enhance Total Suspended Solids (TSS) and Total Phosphorus (TP) removal with easy access for inspection and maintenance.

The Isolator Row

The Isolator Row is a row of StormTech chambers, either SC-160, SC-310, SC-310-3, SC-740, DC-780, MC-3500 or MC-7200 models, that is surrounded with filter fabric and connected to a closely located manhole for easy access. The fabric-wrapped chambers provide for sediment settling and filtration as stormwater rises in the Isolator Row and passes through the filter fabric. The open bottom chambers and perforated sidewalls (SC-310, SC- 310-3 and SC-740 models) allow stormwater to flow both vertically and horizontally out of the chambers. Sediments are captured in the Isolator Row protecting the adjacent stone and chambers storage areas from sediment accumulation.

ADS geotextile fabric is placed between the stone and the Isolator Row chambers. The woven geotextile provides a media for stormwater filtration, a durable surface for maintenance, prevents scour of the underlying stone and remains intact during high pressure jetting. A non-woven fabric is placed over the chambers to provide a filter media for flows passing through the chamber's sidewall. The non-woven fabric is not required over the SC-160, DC-780, MC-3500 or MC-7200 models as these chambers do not have perforated side walls.

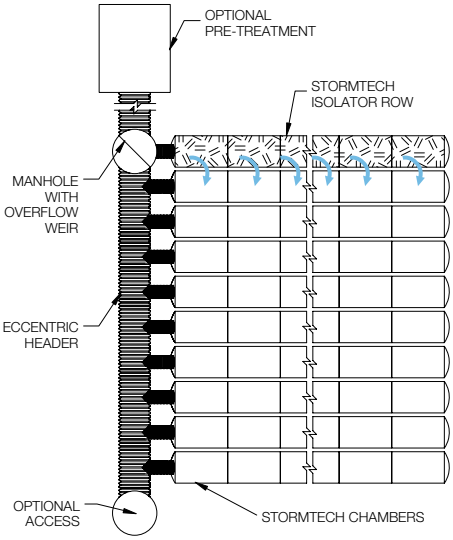
The Isolator Row is designed to capture the "first flush" runoff and offers the versatility to be sized on a volume basis or a flow-rate basis. An upstream manhole provides access to the Isolator Row and includes a high/low concept such that stormwater flow rates or volumes that exceed the capacity of the Isolator Row bypass through a manifold to the other chambers. This is achieved with an elevated bypass manifold or a high-flow weir. This creates a differential between the Isolator Row row of chambers and the manifold to the rest of the system, thus allowing for settlement time in the Isolator Row. After Stormwater flows through the Isolator Row and into the rest of the chamber system it is either exfiltrated into the soils below or passed at a controlled rate through an outlet manifold and outlet control structure.

The Isolator Row may be part of a treatment train system. The treatment train design and pretreatment device selection by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, StormTech recommend using the Isolator Row to minimize maintenance requirements and maintenance costs.

Note: *See the StormTech Design Manual for detailed information on designing inlets for a StormTech system, including the Isolator Row.*

Looking down the Isolator Row from the manhole opening, woven geotextile Fabric is shown between the chamber and stone base.

StormTech Isolator Row with Overflow Spillway (*not to scale*)



Isolator Row Inspection/Maintenance

Inspection

The frequency of inspection and maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e. industrial, commercial, residential), anticipated pollutant load, percent imperviousness, climate, etc. all play a critical role in determining the **actual frequency of inspection and maintenance practices.**

At a minimum, StormTech recommends annual inspections. Initially, the Isolator Row should be inspected every 6 months for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

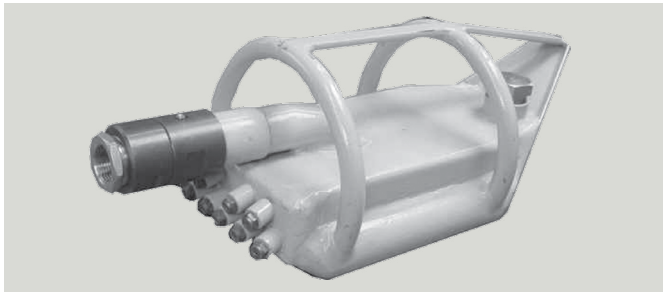
The Isolator Row incorporates a combination of standard manhole(s) and strategically located inspection ports (as needed). The inspection ports allow for easy access to the system from the surface, eliminating the need to perform a confined space entry for inspection purposes.

If upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3 inches throughout the length of the Isolator Row, clean-out should be performed.

Maintenance

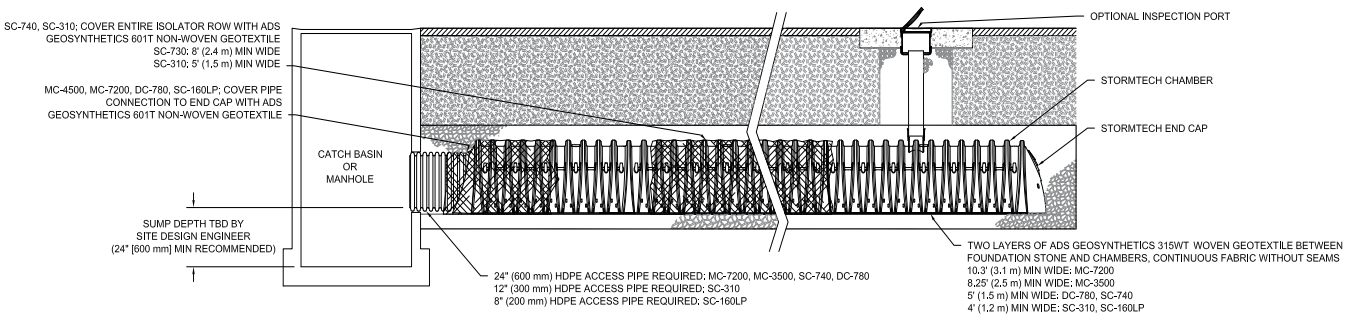
The Isolator Row was designed to reduce the cost of periodic maintenance. By “isolating” sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OSHA rules for a confined space entries.

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45” are best. JetVac reels can vary in length. For ease of maintenance, ADS recommends Isolator Row lengths up to 200" (61 m). **The JetVac process shall only be performed on StormTech Isolator Rows that have AASHTO class 1 woven geotextile (as specified by StormTech) over their angular base stone.**



StormTech Isolator Row (not to scale)

Note: *Non-woven fabric is only required over the inlet pipe connection into the end cap for SC-160LP, DC-780, MC-3500 and MC-7200 chamber models and is not required over the entire Isolator Row.*



Isolator Row Step By Step Maintenance Procedures

Step 1

Inspect Isolator Row for sediment.

A) Inspection ports (if present)
   i. Remove lid from floor box frame
   ii. Remove cap from inspection riser
   iii. Using a flashlight and stadia rod,measure depth of sediment and record results on maintenance log.
   iv. If sediment is at or above 3 inch depth, proceed to Step 2. If not, proceed to Step 3.

B) All Isolator Row
   i. Remove cover from manhole at upstream end of Isolator Row
   ii. Using a flashlight, inspect down Isolator Row through outlet pipe
      1. Mirrors on poles or cameras may be used to avoid a confined space entry
      2. Follow OSHA regulations for confined space entry if entering manhole
   iii. If sediment is at or above the lower row of sidewall holes (approximately 3 inches), proceed to Step 2. If not, proceed to Step 3.

Step 2

Clean out Isolator Row using the JetVac process.

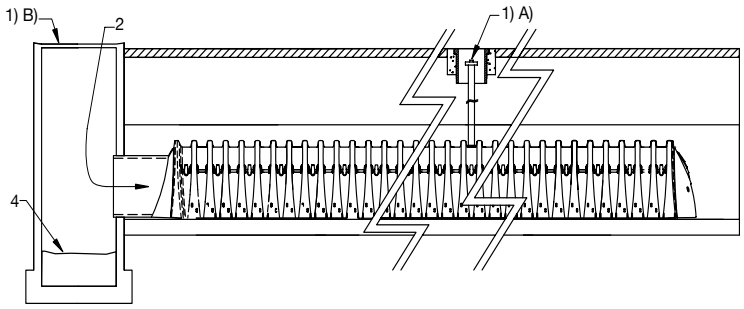
A) A fixed floor cleaning nozzle with rear facing nozzle spread of 45 inches or more is preferable
B) Apply multiple passes of JetVac until backflush water is clean
C) Vacuum manhole sump as required

Step 3

Replace all caps, lids and covers, record observations and actions.

Step 4

Inspect & clean catch basins and manholes upstream of the StormTech system.



Sample Maintenance Log

Date	Stadia Rod Readings		Sedi-ment Depth (1)–(2)	Observations/Actions	Inspector
	Fixed point to chamber bottom (1)	Fixed point to top of sediment (2)			
3/15/11	6.3 ft	none		New installation. Fixed point is CI frame at grade	DJM
9/24/11		6.2	0.1 ft	Some grit felt	SM
6/20/13		5.8	0.5 ft	Mucky feel, debris visible in manhole and in Isolator Row, maintenance due	NV
7/7/13	6.3 ft		0	System jetted and vacuumed	DJM

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