



PROJECT STORM DRAIN CALCULATIONS

FOR THE

PGE Integrated Operations Center: Dry Storage Building

12345 SW Blake Street
Tualatin, OR 97062

January 25, 2023



RENEWS: 6-30-2023

TABLE OF CONTENTS/INCLUSIONS:

Storm Drain Narrative:.....STM-1
Tributary Area Maps:.....STM-2 to STM-3
Storm Drainage Facilities Design:.....STM-4
Storm Facility Details:.....STM-5 to STM-6



January 25, 2023

PGE Integrated Operations Center
12345 SW Blake Street
Tualatin, OR 97062

RE: "Project Storm Drainage Narrative"
PGE: Dry Storage Building
12345 SW Blake Street
Tualatin, OR 97062

At your request, WDY, Inc. has completed the following project storm drainage calculations in accordance with the City of Tualatin's standards for treating and detaining stormwater runoff for the above referenced development. It is our understanding that the City of Tualatin follows the Clean Water Services manual for stormwater mitigation.

Existing Conditions:

The existing site is located at the northeast corner of the intersection of SW 124th Avenue and SW Blake Street. There is an existing 2,100 square foot fenced area surrounding a communications tower and a small structure, near southwest of the property line, with a paved driveway leading to the fenced area, and the rest of the area is wooded with mature evergreen trees. The existing site generally slopes from the southeast to the northwest. See STM-2 for the Pre-Developed Tributary Area Map.

Proposed New Site Development:

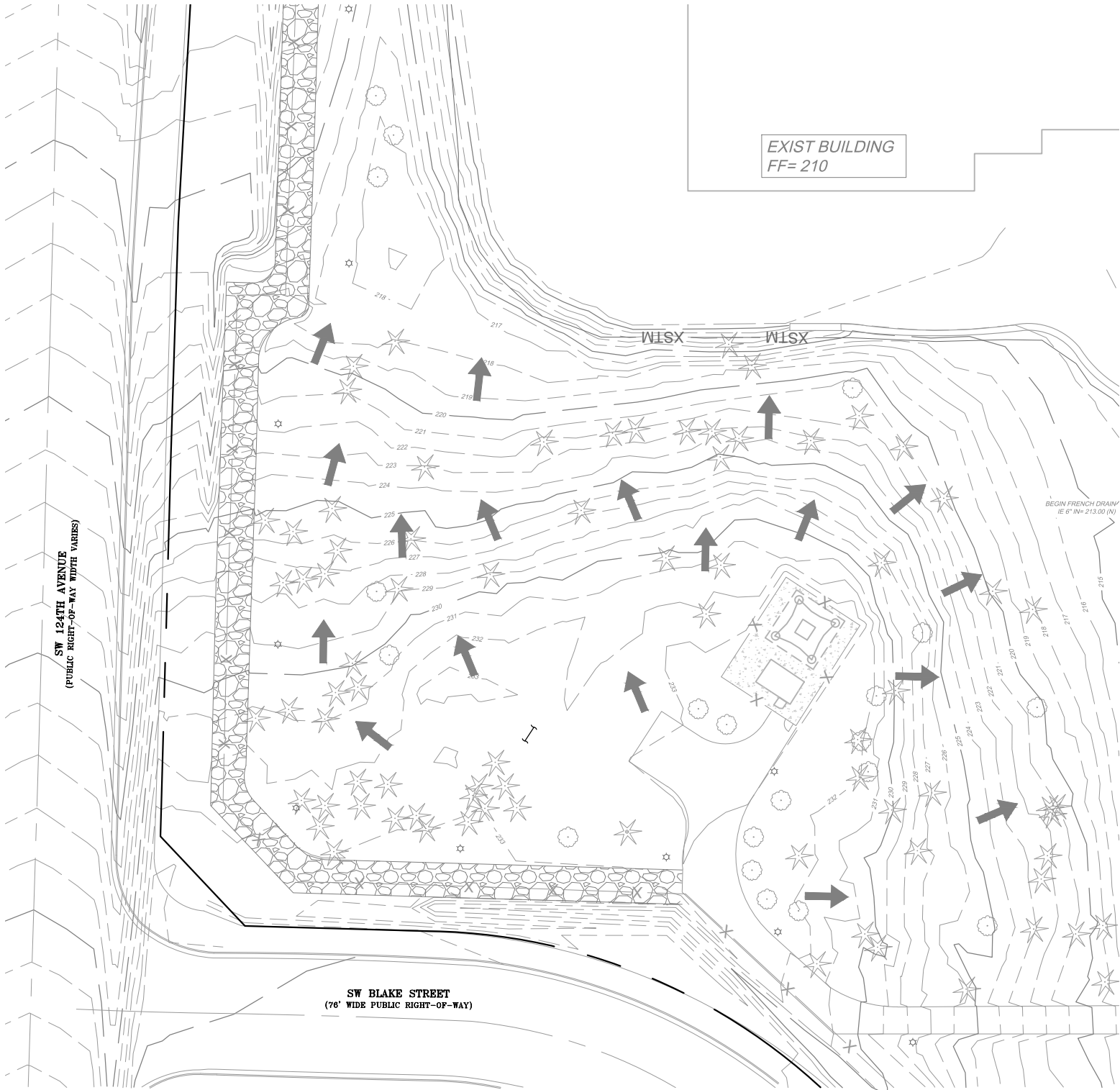
The proposed site improvements consist of a new 1,600 sf single structure with roller doors to allow for vehicle parking, a 6-foot gravel walkway surrounding the structure on all non-paved sides, and a paved driveway extension leading to the new structure. The existing trees will remain to be included in the storm calculations.

Since the development will add less than 12,000 sf of impervious area, the project falls under Category 1 per the Hydromodification Table. Runoff collected from the roof of the proposed building will be redirected to a rain garden downstream of the building. The rain garden has been sized per CWS simplified sizing requirement of 12%. Overflow from the rain garden will be conveyed via sheet flow to existing downstream trees that will be identified as stormwater trees.

The new pavement and gravel pathway will sheet flow to adjacent landscape filter strip or stormwater trees. Following CWS Section 4.09.16, Stormwater Trees allow a reduction of impervious area, sizing for hydromodification. Retained evergreen trees with at least 6-inch Diameter at Breast Height (DBH), provide an area of credit of 20% of the canopy area. See STM-3 for location of the Stormwater Trees.

Sincerely,

Kari Kuboyama, P.E.



PRE-DEVELOPED TRIBUTARY AREA MAP

STORMWATER EXISTING TRIBUTARY AREA MAP

SCALE: 1"=60'-0"

Job Name: PGE STORAGE BUILDING CIVIL

Date: 1/26/2023

Job No.: 22283.70

Drawn: AV

Client: BROCKAMP & JAEGER

Sheet:



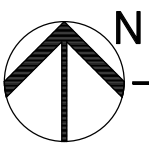
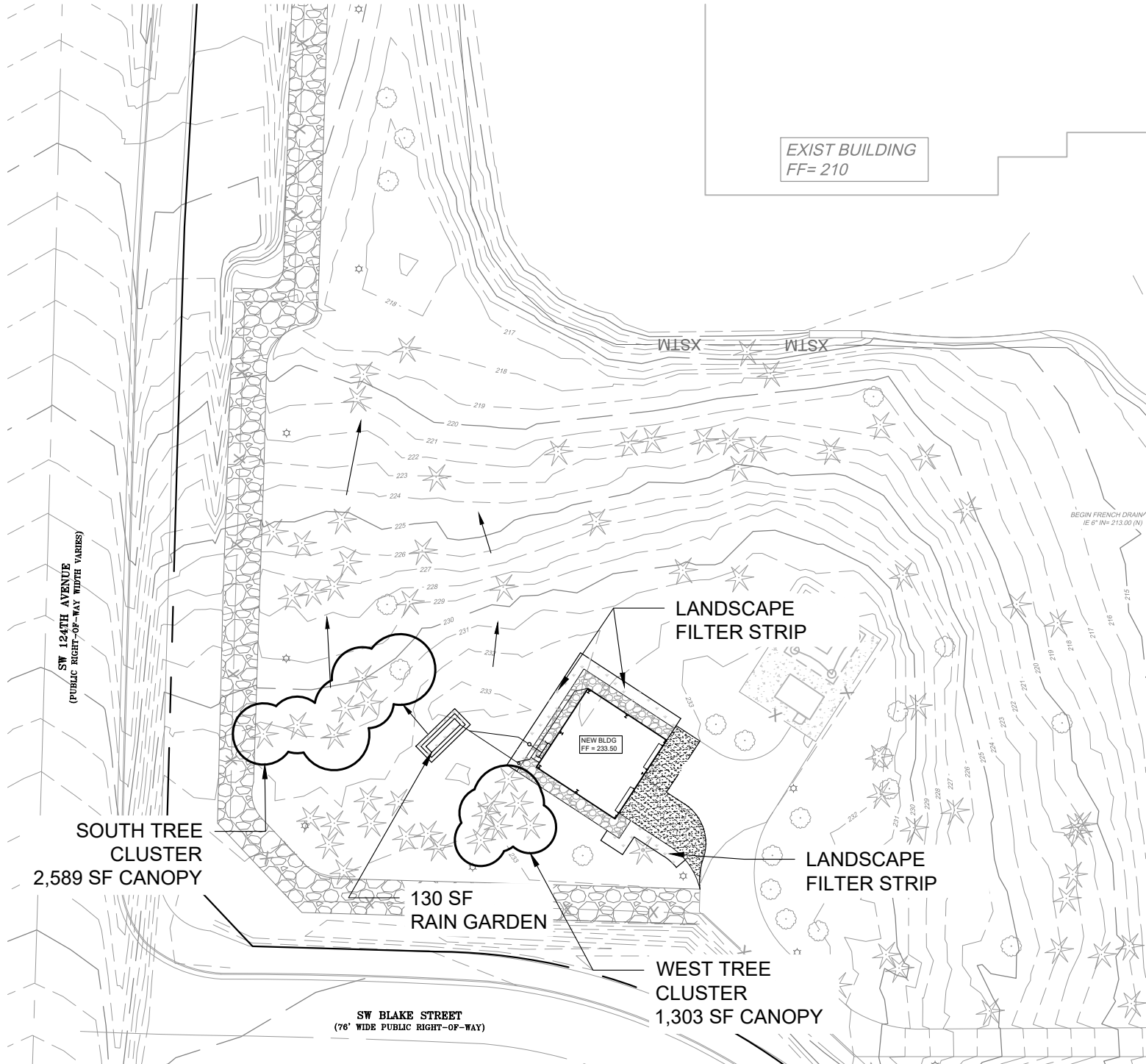
Structural · Civil Engineers

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STM-2

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FILE: 22283_DRAINAGE MAPS.DWG EXISTING 1/26/2023 2:23:09 PM - KUBOYAMA



POST-DEVELOPED TRIBUTARY AREA MAP

STORMWATER PROPOSED TRIBUTARY AREA MAP		SCALE:	1"=60'-0"
Job Name:	PGE STORAGE BUILDING CIVIL	Date:	1/26/2023
Job No.:	22283.70	Drawn:	AV
Client:	BROCKAMP & JAEGER	Sheet:	

STM-3



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FILE: 22283_DRAINAGE_MAPS.DWG PROPOSED 1/26/2023 2:23:10 PM - KUBOYAMA



Job Name: PGE: Dry Storage Building

Job No: 22283

Sheet No: STM-4

Client: Brockamp & Jaeger

Date: 01-25-2023

By: AV

Project Storm Drainage Design Criteria

- Hydromodification for this site is required and must meet the requirements for a category 1 design approach, (Small Project 1,000-12,000 sf).
- CWS: Simplified sizing may be used for facilities where the contributing impervious area to an individual water quality approach is no greater than 15,000 square feet per facility inlet. A 12% sizing factor shall be used to calculate the required surface area of the facility.

Project Areas

Pre-Developed

- Total Storage Building Existing Pervious = 3,366 sf (CN= 70)
 - Vegetation = 3,366 sf

Post-Developed

- Total Storage Building Proposed Impervious = 3,366 sf (CN= 98)
 - Building = 1,600 sf
 - Pavement = 974 sf
 - Gravel Pathway = 792 sf

Storm Water Mitigation

Stormwater Tree Credit Calculations (Retained Evergreen, 20% Area Credit):

- West Cluster = 1,303 sf canopy = maximum 260 sf credit (240 sf managed)
- South Cluster = 2,589 sf canopy = maximum 517 sf credit (517 sf managed)

Rain Garden Sizing

- Area remaining after stormwater tree credit = 1,600 sf – 517sf = 1,083 sf
- 1,083 sf x 0.12 = 130 sf vegetated facility required
- Overflow to be directed to sheet flow to stormwater trees.
- Bottom of rain garden = 6.5' x 17' at 231.10
- Top of treatment/storage (3:1 side slopes) = 130 sf at 231.60
- Top of 6" freeboard = 232.10

Landscape Filter Strip

- New pavement and gravel pathway
- Per LIDA handbook, use 0.06 sizing factor
- Each Landscape Filter Strip to be at minimum 5 ft wide, 5% max slope.
- Landscape Filter Strip at pavement: 974 sf x 0.06 = 58.4 sf min; (217 sf provided)

Job Name: **PGE Storage Civil**

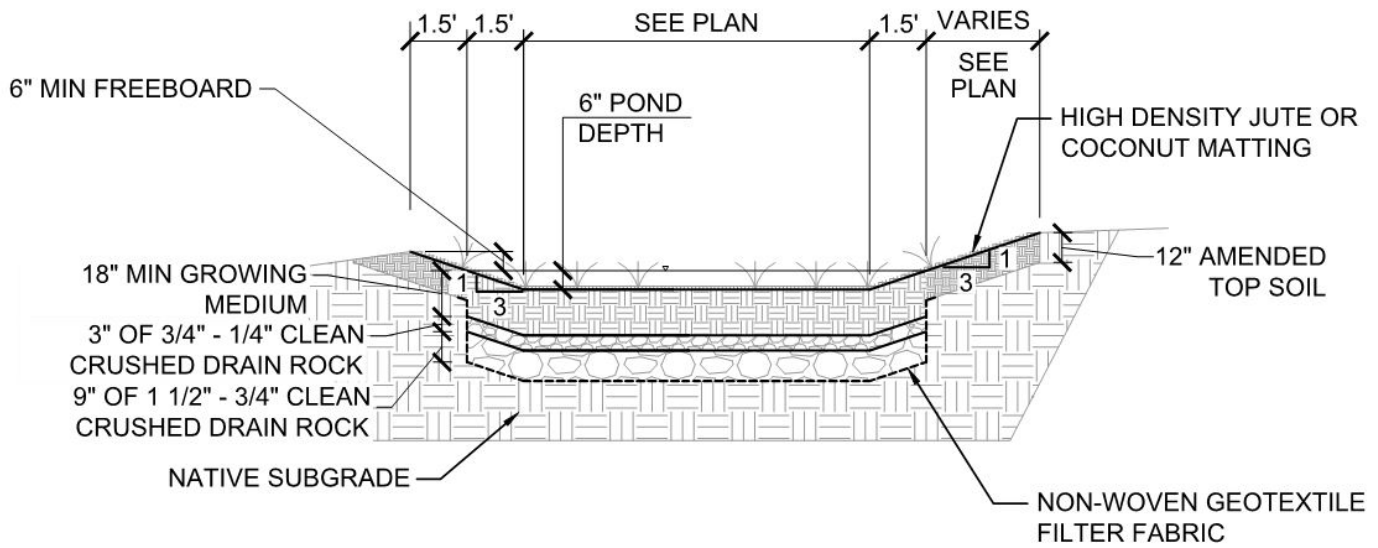
Job No: **22283**

Sheet No: **STM-5**

Client: **Brockamp & Jaeger**

Date: **Jan. 2023**

By: **AV**



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C3.0

RAIN GARDEN CROSS SECTION

N.T.S.

Job Name: **PGE Storage Civil**

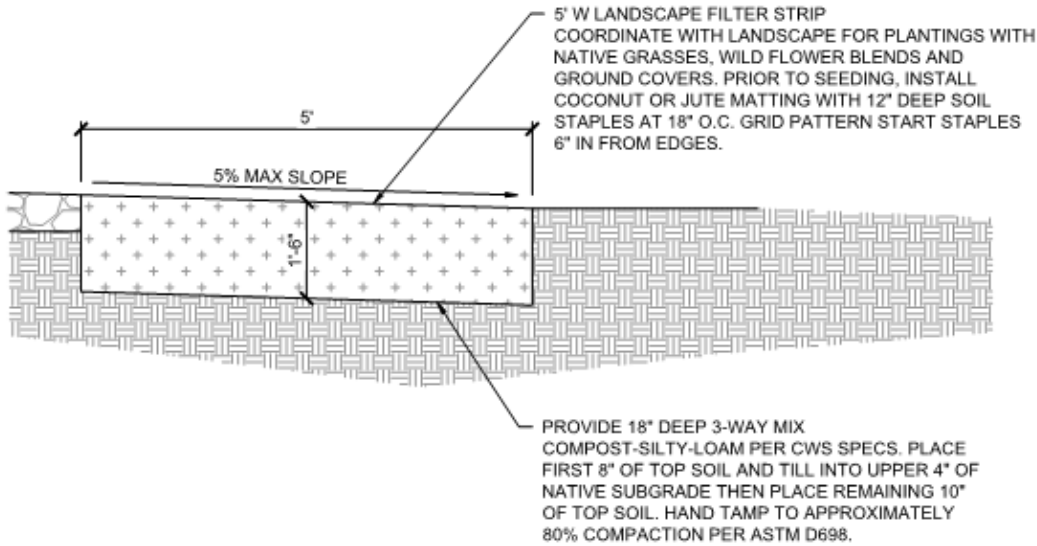
Job No: **22283**

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Client: **Brockamp & Jaeger**

Date: **Jan. 2023**

By: **AV**



8
C3.1 LANDSCAPE FILTER STRIP
N.T.S.