



STORMWATER SITE PLAN

for

Powersports Northwest

197 N Hamilton Road

Chehalis, WA 98532

PREPARED FOR

Powersports Northwest

PREPARED BY

JSA CIVIL

Engineering | Planning | Management

111 TUMWATER BLVD SE, SUITE C210

TUMWATER, WA 98501

CONTACT: BRANDON JOHNSON, PE

PHONE: 360.269.6346

Contents

SECTION 1: PROJECT OVERVIEW.....	4
SECTION 2: SITE CONDITIONS.....	5
SECTION 3: OFF-SITE ANALYSIS AND REPORT.....	5
SECTION 4: PERMANENT STORMWATER CONTROL PLAN.....	5
SECTION 5: PERMITS.....	7
SECTION 6: CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN.....	7

Appendices

- APPENDIX 1: VICINITY MAP
- APPENDIX 2: BASIN MAP
- APPENDIX 3: FEMA MAP
- APPENDIX 4: SOILS DATA
- APPENDIX 5: WWHM REPORT
- APPENDIX 6: PRELIMINARY ENGINEERING PLANS

JSA CIVIL

Engineering | Planning | Management

PROJECT ENGINEER'S CERTIFICATION

The technical material and data contained in these documents were prepared under the supervision and direction of the undersigned, whose seal, as a professional engineer to practice as such, is affixed below.



A handwritten signature in blue ink, appearing to read "Brandon Johnson".

Brandon Johnson, PE
Principal

November 7, 2022

Date

SECTION 1: PROJECT OVERVIEW

This Stormwater Site Plan was prepared for the proposed Powersports Northwest facility to be located at 197 N Hamilton Road, Chehalis, WA 98532. This report was prepared to comply with the minimum technical standards and requirements that are set forth in the 2019 Department of Ecology Stormwater Management Manual for Western Washington (SWMMWW).

The proposed commercial development will be constructed on a portion of Lewis County Tax Parcel Nos. 017897011001 & 01789606014. Specifically, the proposed site improvements include the following:

- Site preparation, grading, and erosion control activities
- Construction of a 30,000 SF showroom and 8,000 SF warehouse
- Construction of an impervious surface parking lot & access roadways
- Construction of on-site stormwater facilities
- Extension of utilities (sewer, water, power, cable, etc.)

The proposed project improvements will result in more than 5,000 ft² of new impervious surface area. According to the SWMMWW, Minimum Requirements 1-9 need to be addressed. The following table summarizes how each requirement will be met.

MINIMUM REQUIREMENT	COMPLIANCE WITH MINIMUM REQUIREMENT
#1 - Stormwater Site Plan	The contents of this report and the enclosed plans are intended to satisfy this requirement.
#2 - Construction SWPPP	A Construction SWPPP will be prepared at the time of final permitting.
#3 - Source Control of Pollution	If required, a Source Control Pollution Prevention Plan will be recorded against the property prior to certificate of occupancy.
#4 - Drainage Path Preservation	Preservation of the site's previously established natural drainage paths will be maintained to the maximum extent practicable.
#5 - Stormwater Management	List 2 from the SWMMWW will be implemented to meet the project's Low Impact Development (LID) requirements.
#6 - Runoff Treatment	More than 5,000 ft ² of new/replaced impervious surface area is proposed. A Bioretention facility will be utilized to meet MR#6.
#7 - Flow Control	More than 10,000 ft ² of new/replaced impervious surface is proposed. Stormwater will be released off-site at the predeveloped flow rates. A Bioretention facility will be utilized to meet MR#7.
#8 - Wetlands Protection	The proposed project improvements will not disturb existing mapped wetlands.
#9 - Operation & Maintenance	An Agreement to Maintain Stormwater Facilities will be recorded against the property, if required.

Table 1: Compliance with Minimum Technical Requirements

SECTION 2: SITE CONDITIONS

Existing Site Conditions

The subject site is approximately 4.70 acres and is currently developed as a manufactured home sales facility. The site generally slopes east to west towards the southwest corner of the site. According to FEMA mapping, the site is positioned in Zone X, an area of minimal flooding. See Appendix 3.

Soils Information

The SCS Web Soil Survey shows the soils in the vicinity of the proposed stormwater treatment facility to be Olequa Silt, a type C soil with a Ksat between 0.2 and 0.57 in/hr. A bioretention facility that infiltrates 91% of the stormwater, utilizing a 0.25 in/hr infiltration rate, and releases the remaining stormwater off-site at the predeveloped flow rates is proposed. See Appendix 4 for soils data.

Wells & Septics

An existing well and septic system currently serve the manufactured homes sales facility. The proposed development will decommission the well and abandon the septic system per WSDOE and WSDOH requirements.

Fuel Tanks

There are no known fuel tanks on site.

SECTION 3: OFF-SITE ANALYSIS AND REPORT

On-site generated stormwater runoff from the proposed commercial development will be routed to an on-site bioretention facility, which will be released off-site to the south at the predeveloped flow rates. Historic off-site drainage courses will not be altered. Consequently, downstream impacts are not anticipated.

SECTION 4: PERMANENT STORMWATER CONTROL PLAN

Summary Section

The following tables identifies the different land-type designations and their respective areas for the on-site and off-site threshold discharge areas:

ON-SITE LAND TYPE DESIGNATIONS	AREA (ACRES)	% OF TOTAL AREA
Threshold Discharge Area	4.70	100.0%
Proposed Impervious Surface Area	3.25	73%
Proposed Landscaping & Storm Pond Area	1.45	27.0%

Low Impact Development Analysis

List #2 from *Table I-3.2* of the SWMMWW will be used for this project in lieu of meeting the LID Performance Standard.

SURFACE	BMP LID	FEASIBLE	INFEASIBILITY CRITERIA
Landscaped Areas	BMP T5.13	Yes	Post Construction Soil Quality & Depth - N/A

SURFACE	BMP LID	FEASIBLE	INFEASIBILITY CRITERIA
Roof Area	BMP T5.30 Full Dispersion	No	A minimum on-site forested or native vegetation flow path length of 100 feet cannot be achieved.
	BMP T5.10A Full Infiltration	No	Per soils information, full infiltration is infeasible.
	BMP T7.30 Bioretention	Yes	Feasible.
	BMP 5.10B Downspout Dispersion	No	A vegetated flowpath of at least 25 feet between dispersion BMP and property line is not feasible.
	BMP T5.10C Perforated Stub Out	No	The connecting pipe discharged to a stormwater facility designed to meet Minimum Requirement 7

SURFACE	BMP LID	FEASIBLE	INFEASIBILITY CRITERIA
Other Hardscapes	BMP T5.30 Full Dispersion	No	A minimum on-site forested or native vegetation flow path length of 100 feet cannot be achieved.
	BMP T5.15 Pervious Paving	No	New permeable pavement would be exposed to long-term excessive sediment deposition after construction
	BMP T7.30 Bioretention	Yes	Feasible.
	BMP T5.12 Sheet Flow Dispersion	No	A vegetated flowpath of at least 25 feet between dispersion BMP and property line is not feasible.
	BMP T5.11 Concentrated Flow Dispersion	No	A vegetated flowpath of at least 25 feet between dispersion BMP and property line is not feasible.

Water Quality System / Flow Control

A bioretention facility will be used to provide both water quality and flow control for the proposed project. The proposed facility will have a bottom surface area of approximately 29,000 SF and will be 2.5'. The facility has been sized to infiltrate 91% of all stormwater events and discharge larger events to match predeveloped durations for the range of predeveloped discharge rates from 50% of the 2-year peak flow up to the full 50-year peak flow (i.e., the stream duration standard). The WWHM report is enclosed as an appendix. Stormwater will be released off-site at the historic location. Refer to the civil engineering plans for additional design information.

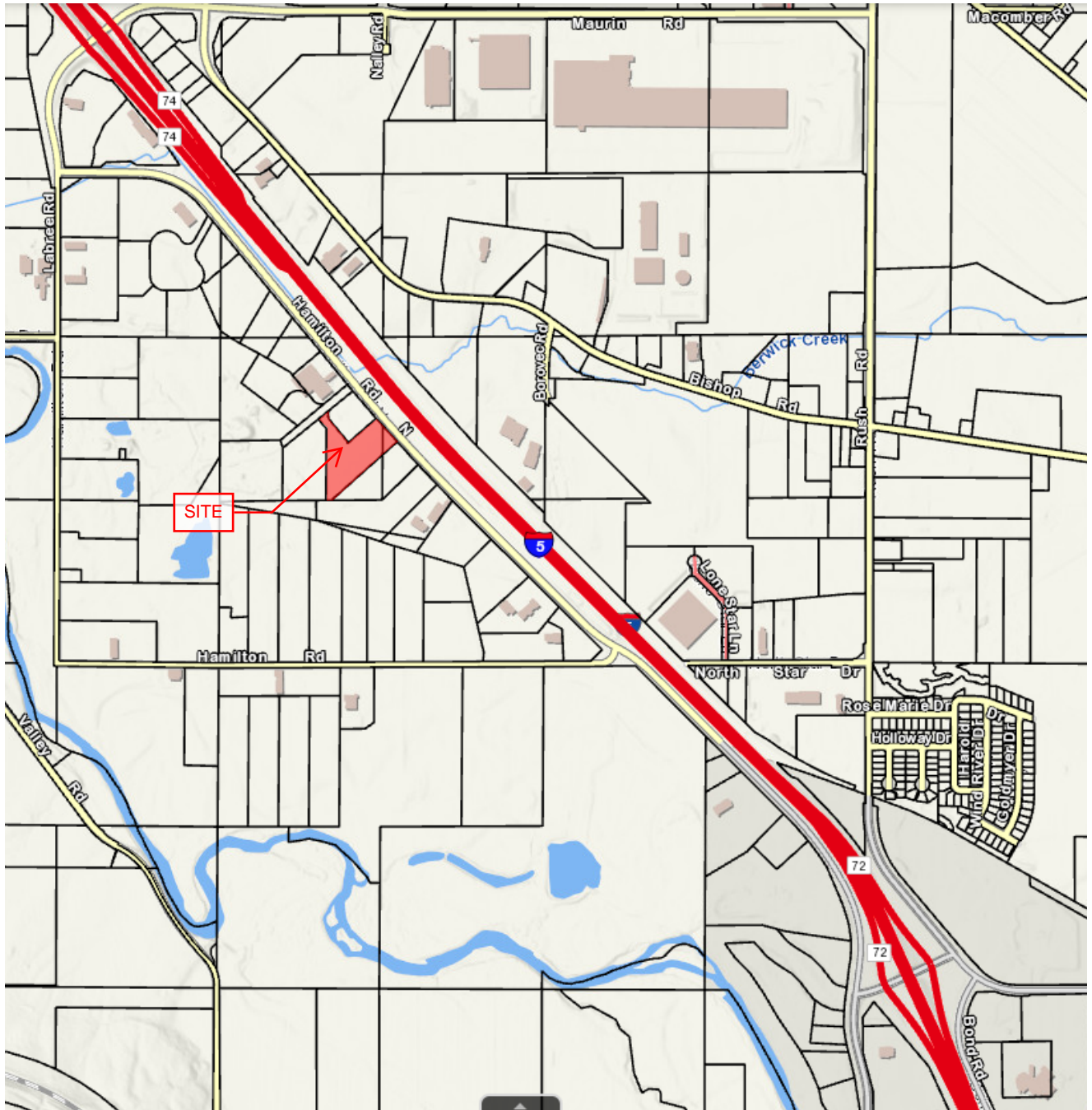
SECTION 5: PERMITS

The following permits and approvals will need to be secured from Lewis County prior to beginning construction activities.

- State Environmental Policy Act (SEPA) Determination
- Site Plan Review
- Civil Construction Permit
- Building Permit
- WSDOE Notice of Intent

SECTION 6: CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN

A Construction Stormwater Pollution Prevention Plan will be prepared as part of the final construction documents.



APPENDIX 1 VICINITY MAP

JSA CIVIL

Engineering | Planning | Management

APPENDIX 2

BASIN MAP

JSA CIVIL

Engineering | Planning | Management

APPLICANT
 RALPH HUBBERT
 197 N HAMILTON ROAD
 CENTREVILLE, VA 20131
 PHONE: (301) 298-4500
 FAX: (301) 298-4500
 RALPH@RHPENGINEERING.COM

SITE ADDRESS
 197 N HAMILTON ROAD
 CENTREVILLE, VA 20132

PARCEL NUMBERS
 01789370100, 01789360014

ZONING
 C-1 - GENERAL COMMERCIAL

ENGINEER
 JSA CIVIL
 6045 LITTLEBROOK ROAD, SUITE A
 CENTREVILLE, VA 20131
 PHONE: 360.294.6346
 CONTACT: BRADLON JOHNSON, PE

SUPERVISOR
 FORREST SHERMAN, INC.
 1563 N. NATURAL AVE
 FARMERSVILLE, VA 22615
 PHONE: 541.746.6200
 CONTACT: BRITNIER R. BAINS

GOVERNING AGENCY
 CITY OF CENTREVILLE
 PHONE: (540) 349-1062

UTILITIES
 SWEETWATER
 PHONE: (540) 746-0238
 COMCAST
 PHONE: (800) 334-4889

ENGINEER / ASST
 FLORET SOUND ENERGY
 PHONE: (980) 225-5773

CABLE
 COMCAST
 PHONE: (800) 334-4889

HORIZONTAL DATUM
 HOLDING CONTROL BEARING FOR TIGAS COUNTY RECORD OF SURVEY RECORDED UNDER PLAN 308482

VERTICAL DATUM
 NAVD83
 197 N HAMILTON ROAD
 0270065 - 75' AT ELEVATION 222.788 1957'



LEGEND

- PROPERTY LINE
- CONCRETE DRIVE & CURB
- GRAVEL CONCRETE SIDEWALK (0.14 ACRES)
- CONCRETE PAVING (0.06 ACRES)
- PROPOSED BUILDING (0.88 ACRES)
- EXISTING BUILDING (0.02 ACRES)
- LANDSCAPING/STONE/SPFH (1.45 ACRES)
- ASPHALT PAVING (2.29 ACRES)

CONSTRUCTION NOTES

1. EXISTING BUILDING TO REMAIN
2. EXISTING BUILDING TO BE REMOVED
3. EXISTING WELL TO BE DECOMMISSIONED
4. EXISTING SEPTIC TANK AND SPANFIELD TO BE REMOVED
5. POND, SET CO. & SD PLANS
6. ADA PATHWAY TO PUBLIC R/W
7. EXISTING DRIVEWAY TO REMAIN
8. EXISTING SIGN TO REMAIN AND BE REIMPOSED
9. TRUCK ACCESS
10. EXISTING UTILITY TO REMAIN
11. 20'X7' AUTO PARKING (179)
12. 65'X10' TRAILER PARKING (179)
13. 3' WIDE CONCRETE VALLEY CUTTER



SITE DATA

TPN	01789370100 & 01789360014
PARCEL AREA	1.410 ACRES
EXISTING BUILDING	1,120 SF (MATERIALS)
NEW BUILDING 1	30,600 SF (SHOWROOM)
NEW BUILDING 2	8,000 SF (WAREHOUSE)

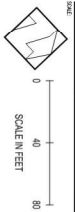
PARKING DATA

TYPE	TOTAL	ADA
AUTOMOBILE	77	4
TRAILER / RV	19	0
TOTAL PARKING	96	4

REV	DATE	COMMENT	BY
0	12/01/21	ISSUED FOR REVIEW	BJJ
1	01/21/22	REVISED W/ SURVEY	BJJ

DRAWN BY:	L. SALES
CHECKED BY:	B. JOHNSON

PRELIMINARY



SITE PLAN

SP-01

APPENDIX 3 FEMA MAP

JSA CIVIL

Engineering | Planning | Management

National Flood Hazard Layer FIRMMette



122°55'46"W 46°37'13"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
OTHER FEATURES		Levee, Dike, or Floodwall
		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
MAP PANELS		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **10/28/2022 at 4:34 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

0 250 500 1,000 1,500 2,000 Feet 1:6,000

122°55'9"W 46°36'49"N

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

APPENDIX 4 SOILS DATA

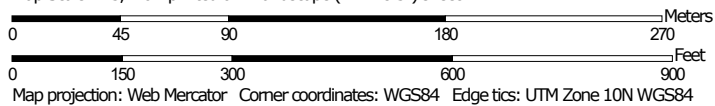
JSA CIVIL

Engineering | Planning | Management

Soil Map—Lewis County Area, Washington



Map Scale: 1:3,140 if printed on A landscape (11" x 8.5") sheet.




MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Lewis County Area, Washington

Survey Area Data: Version 22, Sep 8, 2022

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

Date(s) aerial images were photographed: Nov 21, 2021—Nov 22, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Alvor silty clay loam	0.7	1.8%
48	Chehalis silty clay	0.1	0.3%
118	Lacamas silt loam, 0 to 3 percent slopes	24.4	68.2%
152	Olequa silt loam, 0 to 5 percent slopes	3.2	9.0%
172	Reed silty clay loam	7.4	20.7%
Totals for Area of Interest		35.7	100.0%

Lewis County Area, Washington

152—Olequa silt loam, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2h9v

Elevation: 40 to 300 feet

Mean annual precipitation: 40 to 60 inches

Mean annual air temperature: 50 to 52 degrees F

Frost-free period: 150 to 220 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Olequa and similar soils: 90 percent

Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Olequa

Setting

Landform: Terraces

Typical profile

H1 - 0 to 10 inches: silt loam

H2 - 10 to 20 inches: silt loam

H3 - 20 to 51 inches: silty clay loam

H4 - 51 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water

(Ksat): Moderately high (0.20 to 0.57 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C

Ecological site: F002XA005WA - Puget Lowlands Moist Forest

Forage suitability group: Soils with Few Limitations

(G002XV502WA)

Other vegetative classification: Soils with Few Limitations

(G002XV502WA)

Hydric soil rating: No

Minor Components

Lacamas, undrained

Percent of map unit: 5 percent

Landform: Terraces

Other vegetative classification: Wet Soils (G002XV102WA)

Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Lewis County Area, Washington

Survey Area Data: Version 22, Sep 8, 2022

APPENDIX 5 WWHM REPORT

JSA CIVIL

Engineering | Planning | Management

WWHM2012
PROJECT REPORT

General Model Information

Project Name: 145.001-PSNW
Site Name: PSNW
Site Address:
City:
Report Date: 11/1/2022
Gage: Olympia
Data Start: 1955/10/01
Data End: 2008/09/30
Timestep: Hourly
Precip Scale: 0.800
Version Date: 2019/09/13
Version: 4.2.17

POC Thresholds

Low Flow Threshold for POC1:	50 Percent of the 2 Year
High Flow Threshold for POC1:	50 Year

Landuse Basin Data

Predeveloped Land Use

Basin 1

Bypass:	No
GroundWater:	No
Pervious Land Use C, Pasture, Flat	acre 4.7
Pervious Total	4.7
Impervious Land Use	acre
Impervious Total	0
Basin Total	4.7

Element Flows To:		
Surface	Interflow	Groundwater

Mitigated Land Use

Basin 1

Bypass: No

GroundWater: No

Pervious Land Use acre
C, Lawn, Flat 1.45

Pervious Total 1.45

Impervious Land Use acre
ROOF TOPS FLAT 0.91
SIDEWALKS FLAT 0.14
PARKING FLAT 2.2

Impervious Total 3.25

Basin Total 4.7

Element Flows To:
Surface Interflow Groundwater
Trapezoidal Pond 1 Trapezoidal Pond 1

Routing Elements
Predeveloped Routing

Mitigated Routing

Trapezoidal Pond 1

Bottom Length: 168.87 ft.
 Bottom Width: 168.87 ft.
 Depth: 2.5 ft.
 Volume at riser head: 1.0353 acre-feet.
 Infiltration On
 Infiltration rate: 0.25
 Infiltration safety factor: 1
 Total Volume Infiltrated (ac-ft.): 526.763
 Total Volume Through Riser (ac-ft.): 51.224
 Total Volume Through Facility (ac-ft.): 577.986
 Percent Infiltrated: 91.14
 Total Precip Applied to Facility: 0
 Total Evap From Facility: 0
 Side slope 1: 3 To 1
 Side slope 2: 3 To 1
 Side slope 3: 3 To 1
 Side slope 4: 3 To 1
 Discharge Structure
 Riser Height: 1.5 ft.
 Riser Diameter: 18 in.
 Notch Type: Rectangular
 Notch Width: 0.231 ft.
 Notch Height: 0.398 ft.
 Orifice 1 Diameter: 2.771789258497680 ft.
 Element Flows To:
 Outlet 1 Outlet 2

Pond Hydraulic Table

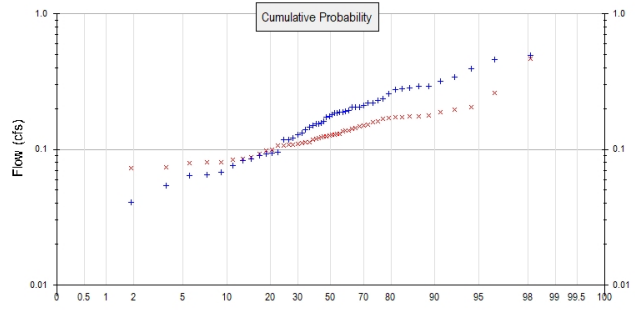
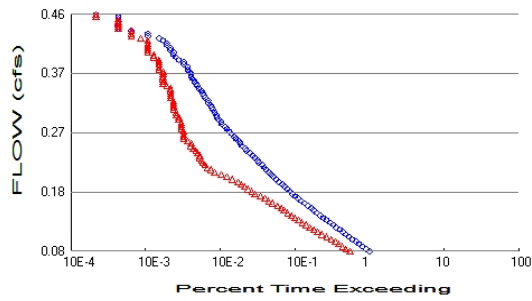
Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.654	0.000	0.000	0.000
0.0278	0.656	0.018	0.034	0.165
0.0556	0.657	0.036	0.049	0.165
0.0833	0.658	0.054	0.060	0.165
0.1111	0.659	0.073	0.069	0.165
0.1389	0.661	0.091	0.077	0.165
0.1667	0.662	0.109	0.085	0.165
0.1944	0.663	0.128	0.091	0.165
0.2222	0.665	0.146	0.098	0.165
0.2500	0.666	0.165	0.104	0.165
0.2778	0.667	0.183	0.109	0.165
0.3056	0.669	0.202	0.115	0.165
0.3333	0.670	0.220	0.120	0.165
0.3611	0.671	0.239	0.125	0.165
0.3889	0.672	0.258	0.130	0.165
0.4167	0.674	0.276	0.134	0.165
0.4444	0.675	0.295	0.139	0.165
0.4722	0.676	0.314	0.143	0.165
0.5000	0.678	0.333	0.147	0.165
0.5278	0.679	0.352	0.151	0.165
0.5556	0.680	0.370	0.155	0.165
0.5833	0.682	0.389	0.159	0.165
0.6111	0.683	0.408	0.163	0.165

0.6389	0.684	0.427	0.166	0.165
0.6667	0.686	0.446	0.170	0.165
0.6944	0.687	0.465	0.173	0.165
0.7222	0.688	0.485	0.177	0.165
0.7500	0.690	0.504	0.180	0.165
0.7778	0.691	0.523	0.183	0.165
0.8056	0.692	0.542	0.187	0.165
0.8333	0.694	0.561	0.190	0.165
0.8611	0.695	0.581	0.193	0.165
0.8889	0.696	0.600	0.196	0.165
0.9167	0.698	0.619	0.199	0.165
0.9444	0.699	0.639	0.202	0.165
0.9722	0.700	0.658	0.205	0.165
1.0000	0.702	0.678	0.208	0.165
1.0278	0.703	0.697	0.211	0.165
1.0556	0.704	0.717	0.214	0.165
1.0833	0.706	0.736	0.217	0.165
1.1111	0.707	0.756	0.220	0.165
1.1389	0.708	0.776	0.227	0.165
1.1667	0.710	0.795	0.237	0.165
1.1944	0.711	0.815	0.249	0.165
1.2222	0.712	0.835	0.262	0.165
1.2500	0.714	0.855	0.276	0.165
1.2778	0.715	0.875	0.292	0.165
1.3056	0.716	0.895	0.308	0.165
1.3333	0.718	0.914	0.326	0.165
1.3611	0.719	0.934	0.344	0.165
1.3889	0.720	0.954	0.363	0.165
1.4167	0.722	0.974	0.383	0.165
1.4444	0.723	0.995	0.404	0.165
1.4722	0.725	1.015	0.426	0.165
1.5000	0.726	1.035	0.448	0.165
1.5278	0.727	1.055	0.524	0.165
1.5556	0.729	1.075	0.661	0.165
1.5833	0.730	1.096	0.837	0.165
1.6111	0.731	1.116	1.045	0.165
1.6389	0.733	1.136	1.279	0.165
1.6667	0.734	1.157	1.536	0.165
1.6944	0.735	1.177	1.812	0.165
1.7222	0.737	1.197	2.103	0.165
1.7500	0.738	1.218	2.407	0.165
1.7778	0.740	1.238	2.719	0.165
1.8056	0.741	1.259	3.037	0.165
1.8333	0.742	1.280	3.357	0.165
1.8611	0.744	1.300	3.676	0.165
1.8889	0.745	1.321	3.989	0.165
1.9167	0.746	1.342	4.294	0.165
1.9444	0.748	1.363	4.587	0.165
1.9722	0.749	1.383	4.865	0.165
2.0000	0.751	1.404	5.126	0.165
2.0278	0.752	1.425	5.368	0.165
2.0556	0.753	1.446	5.589	0.165
2.0833	0.755	1.467	5.787	0.165
2.1111	0.756	1.488	5.964	0.165
2.1389	0.758	1.509	6.119	0.165
2.1667	0.759	1.530	6.254	0.165
2.1944	0.760	1.551	6.372	0.165
2.2222	0.762	1.572	6.478	0.165

2.2500	0.763	1.593	6.577	0.165
2.2778	0.764	1.615	6.757	0.165
2.3056	0.766	1.636	6.870	0.165
2.3333	0.767	1.657	6.980	0.165
2.3611	0.769	1.679	7.089	0.165
2.3889	0.770	1.700	7.196	0.165
2.4167	0.771	1.721	7.302	0.165
2.4444	0.773	1.743	7.405	0.165
2.4722	0.774	1.764	7.508	0.165
2.5000	0.776	1.786	7.609	0.165
2.5278	0.777	1.808	7.708	0.165

Analysis Results

POC 1



+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1

Total Pervious Area: 4.7
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1

Total Pervious Area: 1.45
Total Impervious Area: 3.25

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.163089
5 year	0.259814
10 year	0.324421
25 year	0.404744
50 year	0.463042
100 year	0.519775

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0.123745
5 year	0.168653
10 year	0.202359
25 year	0.24971
50 year	0.288611
100 year	0.330766

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1956	0.189	0.124
1957	0.341	0.175
1958	0.096	0.083
1959	0.122	0.112
1960	0.230	0.158
1961	0.156	0.108
1962	0.054	0.084
1963	0.282	0.179
1964	0.186	0.119
1965	0.175	0.114

1966	0.085	0.088
1967	0.173	0.137
1968	0.128	0.110
1969	0.076	0.074
1970	0.140	0.107
1971	0.186	0.135
1972	0.281	0.167
1973	0.155	0.126
1974	0.118	0.092
1975	0.093	0.098
1976	0.220	0.122
1977	0.040	0.080
1978	0.205	0.130
1979	0.190	0.125
1980	0.150	0.127
1981	0.237	0.142
1982	0.132	0.151
1983	0.259	0.160
1984	0.193	0.130
1985	0.065	0.099
1986	0.290	0.173
1987	0.395	0.172
1988	0.090	0.119
1989	0.118	0.109
1990	0.319	0.188
1991	0.460	0.260
1992	0.094	0.106
1993	0.068	0.073
1994	0.064	0.080
1995	0.180	0.153
1996	0.294	0.176
1997	0.160	0.123
1998	0.189	0.128
1999	0.205	0.139
2000	0.210	0.144
2001	0.031	0.079
2002	0.204	0.198
2003	0.082	0.070
2004	0.153	0.171
2005	0.146	0.112
2006	0.221	0.147
2007	0.275	0.206
2008	0.497	0.463

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.4968	0.4631
2	0.4603	0.2604
3	0.3946	0.2059
4	0.3407	0.1976
5	0.3189	0.1876
6	0.2939	0.1790
7	0.2900	0.1757
8	0.2824	0.1750
9	0.2809	0.1730
10	0.2751	0.1717
11	0.2586	0.1710

12	0.2374	0.1669
13	0.2299	0.1601
14	0.2209	0.1580
15	0.2195	0.1531
16	0.2098	0.1507
17	0.2052	0.1473
18	0.2045	0.1442
19	0.2043	0.1415
20	0.1931	0.1386
21	0.1897	0.1369
22	0.1892	0.1353
23	0.1890	0.1297
24	0.1858	0.1295
25	0.1857	0.1275
26	0.1803	0.1274
27	0.1750	0.1259
28	0.1729	0.1254
29	0.1599	0.1240
30	0.1562	0.1228
31	0.1546	0.1218
32	0.1534	0.1187
33	0.1504	0.1186
34	0.1463	0.1135
35	0.1403	0.1122
36	0.1317	0.1118
37	0.1281	0.1102
38	0.1218	0.1087
39	0.1181	0.1085
40	0.1181	0.1073
41	0.0958	0.1065
42	0.0939	0.0987
43	0.0930	0.0984
44	0.0903	0.0924
45	0.0853	0.0878
46	0.0824	0.0844
47	0.0757	0.0835
48	0.0682	0.0804
49	0.0650	0.0803
50	0.0642	0.0795
51	0.0543	0.0736
52	0.0404	0.0732
53	0.0311	0.0698

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0815	4665	2542	54	Pass
0.0854	4179	2260	54	Pass
0.0893	3751	2017	53	Pass
0.0931	3350	1779	53	Pass
0.0970	3053	1622	53	Pass
0.1008	2746	1437	52	Pass
0.1047	2480	1249	50	Pass
0.1085	2249	1079	47	Pass
0.1124	2041	938	45	Pass
0.1162	1861	835	44	Pass
0.1201	1658	733	44	Pass
0.1239	1537	664	43	Pass
0.1278	1381	586	42	Pass
0.1316	1242	520	41	Pass
0.1355	1120	466	41	Pass
0.1393	1014	418	41	Pass
0.1432	929	375	40	Pass
0.1471	840	334	39	Pass
0.1509	775	307	39	Pass
0.1548	695	274	39	Pass
0.1586	635	233	36	Pass
0.1625	570	208	36	Pass
0.1663	509	186	36	Pass
0.1702	469	162	34	Pass
0.1740	428	135	31	Pass
0.1779	405	123	30	Pass
0.1817	370	110	29	Pass
0.1856	341	98	28	Pass
0.1894	313	89	28	Pass
0.1933	288	81	28	Pass
0.1971	261	68	26	Pass
0.2010	239	57	23	Pass
0.2049	225	48	21	Pass
0.2087	207	39	18	Pass
0.2126	191	35	18	Pass
0.2164	182	31	17	Pass
0.2203	169	29	17	Pass
0.2241	154	27	17	Pass
0.2280	148	26	17	Pass
0.2318	136	25	18	Pass
0.2357	126	25	19	Pass
0.2395	115	23	20	Pass
0.2434	104	22	21	Pass
0.2472	101	20	19	Pass
0.2511	92	19	20	Pass
0.2550	87	19	21	Pass
0.2588	82	17	20	Pass
0.2627	75	15	20	Pass
0.2665	71	15	21	Pass
0.2704	67	15	22	Pass
0.2742	61	15	24	Pass
0.2781	57	14	24	Pass
0.2819	54	14	25	Pass

0.2858	49	14	28	Pass
0.2896	48	14	29	Pass
0.2935	44	13	29	Pass
0.2973	42	13	30	Pass
0.3012	41	12	29	Pass
0.3050	39	12	30	Pass
0.3089	37	11	29	Pass
0.3128	36	11	30	Pass
0.3166	35	11	31	Pass
0.3205	32	11	34	Pass
0.3243	32	11	34	Pass
0.3282	29	10	34	Pass
0.3320	28	10	35	Pass
0.3359	27	10	37	Pass
0.3397	26	10	38	Pass
0.3436	24	10	41	Pass
0.3474	23	9	39	Pass
0.3513	22	8	36	Pass
0.3551	21	8	38	Pass
0.3590	20	8	40	Pass
0.3629	19	8	42	Pass
0.3667	19	8	42	Pass
0.3706	18	8	44	Pass
0.3744	17	7	41	Pass
0.3783	17	7	41	Pass
0.3821	15	7	46	Pass
0.3860	15	7	46	Pass
0.3898	13	7	53	Pass
0.3937	12	6	50	Pass
0.3975	11	6	54	Pass
0.4014	11	5	45	Pass
0.4052	10	5	50	Pass
0.4091	10	5	50	Pass
0.4129	9	5	55	Pass
0.4168	9	5	55	Pass
0.4207	8	5	62	Pass
0.4245	7	4	57	Pass
0.4284	5	3	60	Pass
0.4322	5	3	60	Pass
0.4361	3	3	100	Pass
0.4399	2	2	100	Pass
0.4438	2	2	100	Pass
0.4476	2	2	100	Pass
0.4515	2	2	100	Pass
0.4553	2	2	100	Pass
0.4592	2	1	50	Pass
0.4630	1	1	100	Pass

Water Quality

Water Quality BMP Flow and Volume for POC #1

On-line facility volume: 0.1551 acre-feet

On-line facility target flow: 0.0885 cfs.

Adjusted for 15 min: 0.0964 cfs.

Off-line facility target flow: 0.0522 cfs.

Adjusted for 15 min: 0.0569 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Trapezoidal Pond 1 POC	<input type="checkbox"/>	525.97			<input type="checkbox"/>	91.14			
Total Volume Infiltrated		525.97	0.00	0.00		91.14	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

Model Default Modifications

Total of 0 changes have been made.

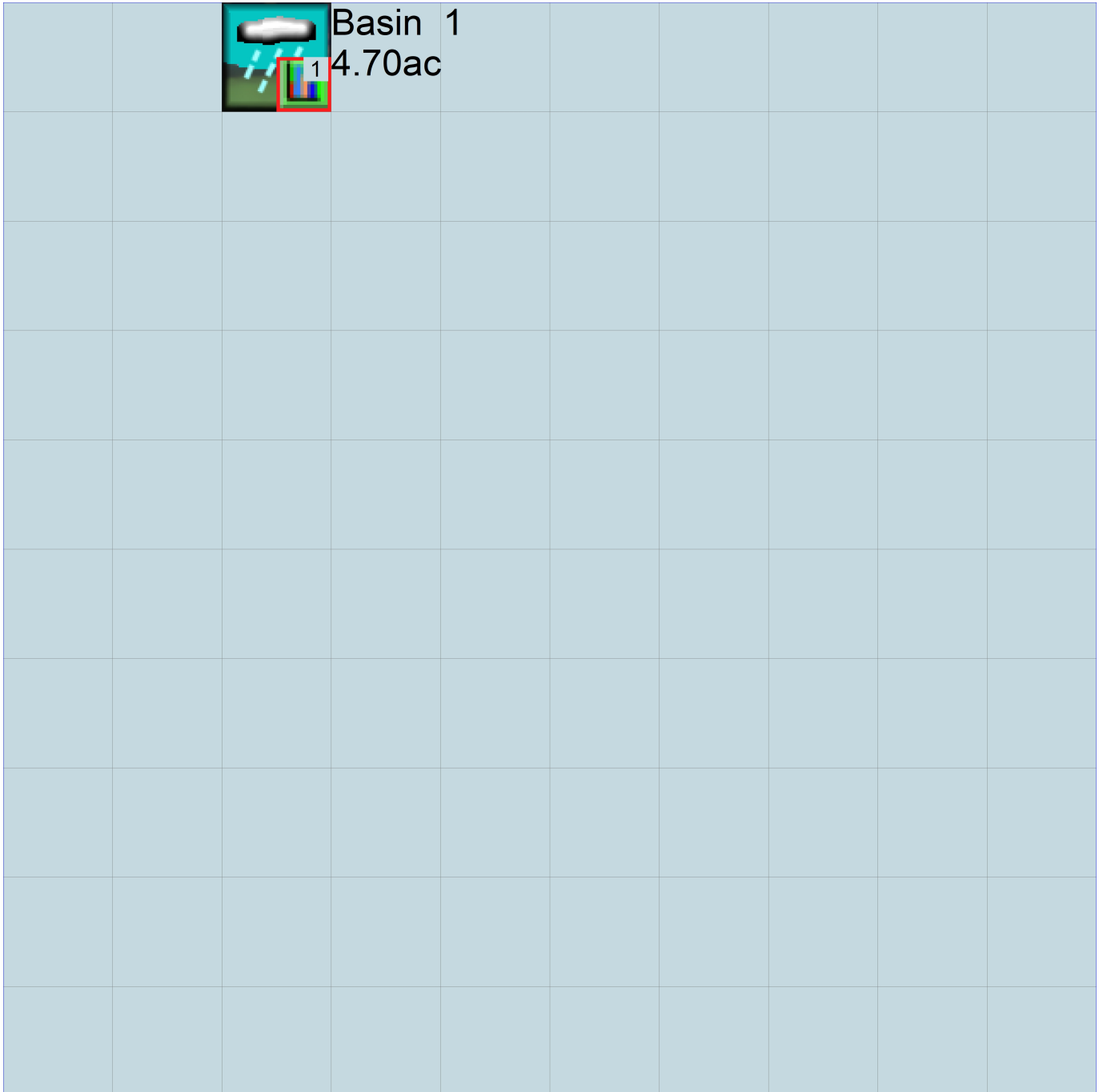
PERLND Changes

No PERLND changes have been made.

IMPLND Changes

No IMPLND changes have been made.

Appendix
Predeveloped Schematic



Mitigated Schematic



Predeveloped UCI File

RUN

GLOBAL

```
WVHM4 model simulation
START      1955 10 01      END      2008 09 30
RUN INTERP OUTPUT LEVEL   3      0
RESUME     0 RUN          1
UNIT SYSTEM 1
```

END GLOBAL

FILES

```
<File> <Un#> <-----File Name----->***
<-ID->                                     ***
WDM      26      145.001-PSNW.wdm
MESSU    25      Pre145.001-PSNW.MES
          27      Pre145.001-PSNW.L61
          28      Pre145.001-PSNW.L62
          30      POC145.001-PSNW1.dat
```

END FILES

OPN SEQUENCE

```
INGRP          INDELT 00:60
  PERLND       13
  COPY         501
  DISPLY       1
```

END INGRP

END OPN SEQUENCE

DISPLY

DISPLY-INFO1

```
# - #<-----Title----->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
1   Basin 1          MAX          1   2   30   9
```

END DISPLY-INFO1

END DISPLY

COPY

TIMESERIES

```
# - # NPT NMN ***
1   1   1
501 1   1
```

END TIMESERIES

END COPY

GENER

OPCODE

```
# # OPCODE ***
```

END OPCODE

PARAM

```
# # K ***
```

END PARAM

END GENER

PERLND

GEN-INFO

```
<PLS ><-----Name----->NBLKS Unit-systems Printer ***
# - # User t-series Engl Metr ***
          in out ***
13      C, Pasture, Flat      1   1   1   1   27   0
```

END GEN-INFO

*** Section PWATER***

ACTIVITY

```
<PLS > ***** Active Sections *****
# - # ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC ***
13      0   0   1   0   0   0   0   0   0   0   0   0   0
```

END ACTIVITY

PRINT-INFO

```
<PLS > ***** Print-flags ***** PIVL PYR
# - # ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC *****
13      0   0   4   0   0   0   0   0   0   0   0   0   0   1   9
```

END PRINT-INFO

```

PWAT-PARM1
<PLS > PWATER variable monthly parameter value flags ***
# - # CSNO RTOP UZFG VCS VUZ VNN VIFW VIRC VLE INFC HWT ***
13 0 0 0 0 0 0 0 0 0 0 0
END PWAT-PARM1

PWAT-PARM2
<PLS > PWATER input info: Part 2 ***
# - # ***FOREST LZSN INFILT LSUR SLSUR KVARY AGWRC
13 0 4.5 0.06 400 0.05 0.5 0.996
END PWAT-PARM2

PWAT-PARM3
<PLS > PWATER input info: Part 3 ***
# - # ***PETMAX PETMIN INFEXP INFILD DEEPFR BASETP AGWETP
13 0 0 2 2 0 0 0
END PWAT-PARM3

PWAT-PARM4
<PLS > PWATER input info: Part 4 ***
# - # CEPSC UZSN NSUR INTFW IRC LZETP ***
13 0.15 0.4 0.3 6 0.5 0.4
END PWAT-PARM4

PWAT-STATE1
<PLS > *** Initial conditions at start of simulation
ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
# - # *** CEPS SURS UZS IFWS LZS AGWS GWVS
13 0 0 0 0 2.5 1 0
END PWAT-STATE1

END PERLND

IMPLND
GEN-INFO
<PLS ><-----Name-----> Unit-systems Printer ***
# - # User t-series Engr Metr ***
in out ***
END GEN-INFO
*** Section IWATER***

ACTIVITY
<PLS > ***** Active Sections *****
# - # ATMP SNOW IWAT SLD IWG IQAL ***
END ACTIVITY

PRINT-INFO
<ILS > ***** Print-flags ***** PIVL PYR
# - # ATMP SNOW IWAT SLD IWG IQAL *****
END PRINT-INFO

IWAT-PARM1
<PLS > IWATER variable monthly parameter value flags ***
# - # CSNO RTOP VRS VNN RTLI ***
END IWAT-PARM1

IWAT-PARM2
<PLS > IWATER input info: Part 2 ***
# - # *** LSUR SLSUR NSUR RETSC
END IWAT-PARM2

IWAT-PARM3
<PLS > IWATER input info: Part 3 ***
# - # ***PETMAX PETMIN
END IWAT-PARM3

IWAT-STATE1
<PLS > *** Initial conditions at start of simulation
# - # *** RETS SURS
END IWAT-STATE1

```

END IMPLND

SCHEMATIC

<-Source->	<Name> #	<--Area-->	<-factor-->	<-Target->	<Name> #	MBLK	Tbl#	***
Basin	1							
PERLND	13		4.7	COPY	501		12	
PERLND	13		4.7	COPY	501		13	

*****Routing*****
END SCHEMATIC

NETWORK

<-Volume->	<-Grp>	<-Member->	<--Mult-->	Tran	<-Target vols>	<-Grp>	<-Member->	***
<Name> #		<Name> #	#	<-factor-->strg	<Name> #	#	<Name> #	***
COPY	501	OUTPUT	MEAN	1 1	12.1		DISPLY 1	INPUT TIMSER 1

<-Volume->	<-Grp>	<-Member->	<--Mult-->	Tran	<-Target vols>	<-Grp>	<-Member->	***
<Name> #		<Name> #	#	<-factor-->strg	<Name> #	#	<Name> #	***

END NETWORK

RCHRES

GEN-INFO

RCHRES	Name	Nexits	Unit	Systems	Printer	***
# - #	<----->	<---->	User	T-series	Engl Metr	LKFG
			in	out		***

END GEN-INFO
*** Section RCHRES***

ACTIVITY

<PLS > ***** Active Sections *****

#	-	#	HYFG	ADFG	CNFG	HTFG	SDFG	GQFG	OXFG	NUFG	PKFG	PHFG	***

END ACTIVITY

PRINT-INFO

<PLS > ***** Print-flags ***** PIVL PYR

#	-	#	HYDR	ADCA	CONS	HEAT	SED	GQL	OXRX	NUTR	PLNK	PHCB	PIVL	PYR	*****

END PRINT-INFO

HYDR-PARM1

RCHRES	Flags	for each HYDR Section	***	ODGTFG	for each	FUNCT	for each	***
# - #	VC A1 A2 A3	ODFVFG for each	***	ODGTFG	for each	FUNCT	for each	***
	FG FG FG FG	possible exit	***	possible exit		possible exit		***
	* * * *	* * * *		* * * *		* * * *		

END HYDR-PARM1

HYDR-PARM2

#	-	#	FTABNO	LEN	DELTH	STCOR	KS	DB50	***

<-----><-----><-----><-----><-----><-----><-----><-----><-----><----->

END HYDR-PARM2

HYDR-INIT

RCHRES	Initial conditions	for each HYDR section	***
# - #	*** VOL	Initial value of COLIND	Initial value of OUTDGT
	*** ac-ft	for each possible exit	for each possible exit
	<-----><----->	<---><---><---><---><--->	*** <---><---><---><---><--->

END HYDR-INIT

END RCHRES

SPEC-ACTIONS

END SPEC-ACTIONS

FTABLES

END FTABLES

EXT SOURCES

<-Volume->	<Member>	SsysSgap	<--Mult-->	Tran	<-Target vols>	<-Grp>	<-Member->	***
<Name> #	<Name> #	tem	strg	<-factor-->strg	<Name> #	#	<Name> #	***
WDM	2	PREC	ENGL	0.8	SUM	PERLND	1 999	EXTNL PREC
WDM	2	PREC	ENGL	0.8	SUM	IMPLND	1 999	EXTNL PREC


```
WDM      1 EVAP      ENGL      0.76          PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP      ENGL      0.76          IMPLND   1 999 EXTNL  PETINP
```

END EXT SOURCES

EXT TARGETS

```
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>      #      <Name> # #<-factor->strg <Name>      # <Name>      tem strg strg***
COPY      501 OUTPUT MEAN   1 1      12.1      WDM      501 FLOW      ENGL      REPL
END EXT TARGETS
```

MASS-LINK

```
<Volume>   <-Grp> <-Member-><--Mult-->   <Target>           <-Grp> <-Member->***
<Name>     #      <Name> # #<-factor->   <Name>           <Name> # #***
  MASS-LINK      12
PERLND      PWATER SURO           0.083333   COPY           INPUT  MEAN
  END MASS-LINK      12
```

```
  MASS-LINK      13
PERLND      PWATER IFWO           0.083333   COPY           INPUT  MEAN
  END MASS-LINK      13
```

END MASS-LINK

END RUN

Mitigated UCI File

RUN

GLOBAL

```
WVHM4 model simulation
START      1955 10 01      END      2008 09 30
RUN INTERP OUTPUT LEVEL   3      0
RESUME     0 RUN          1
UNIT SYSTEM 1
```

END GLOBAL

FILES

```
<File> <Un#> <-----File Name----->***
<-ID->                                     ***
WDM      26      145.001-PSNW.wdm
MESSU    25      Mit145.001-PSNW.MES
          27      Mit145.001-PSNW.L61
          28      Mit145.001-PSNW.L62
          30      POC145.001-PSNW1.dat
```

END FILES

OPN SEQUENCE

```
INGRP          INDELT 00:60
  PERLND        16
  IMPLND         4
  IMPLND         8
  IMPLND        11
  RCHRES         1
  COPY           1
  COPY          501
  DISPLY         1
```

END INGRP

END OPN SEQUENCE

DISPLY

DISPLY-INFO1

```
# - #<-----Title----->***TRAN PIVL DIG1 FIL1 PYR DIG2 FIL2 YRND
1      Trapezoidal Pond 1      MAX      1      2      30      9
```

END DISPLY-INFO1

END DISPLY

COPY

TIMESERIES

```
# - # NPT NMN ***
1      1      1
501    1      1
```

END TIMESERIES

END COPY

GENER

OPCODE

```
#      # OPCD ***
```

END OPCODE

PARM

```
#      #      K ***
```

END PARM

END GENER

PERLND

GEN-INFO

```
<PLS ><-----Name----->NBLKS Unit-systems Printer ***
# - # User t-series Engr Metr ***
          in out ***
16      C, Lawn, Flat      1      1      1      1      27      0
```

END GEN-INFO

*** Section PWATER***

ACTIVITY

```
<PLS > ***** Active Sections *****
# - # ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC ***
16      0      0      1      0      0      0      0      0      0      0      0      0
```

END ACTIVITY

PRINT-INFO

```

<PLS > ***** Print-flags ***** PIVL  PYR
# - # ATMP SNOW PWAT  SED  PST  PWG  PQAL MSTL PEST NITR PHOS TRAC  *****
16   0   0   4   0   0   0   0   0   0   0   0   0   0   1   9
END PRINT-INFO

```

```

PWAT-PARM1
<PLS > PWATER variable monthly parameter value flags ***
# - # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRG  VLE INFC  HWT ***
16   0   0   0   0   0   0   0   0   0   0   0   0
END PWAT-PARM1

```

```

PWAT-PARM2
<PLS > PWATER input info: Part 2 *****
# - # ***FOREST  LZSN  INFILT  LSUR  SLSUR  KVARY  AGWRC
16   0   4.5  0.03  400  0.05  0.5  0.996
END PWAT-PARM2

```

```

PWAT-PARM3
<PLS > PWATER input info: Part 3 *****
# - # ***PETMAX  PETMIN  INFEXP  INFILD  DEEPFR  BASETP  AGWETP
16   0   0   2   2   0   0
END PWAT-PARM3

```

```

PWAT-PARM4
<PLS > PWATER input info: Part 4 *****
# - # CEPSC  UZSN  NSUR  INTFW  IRC  LZETP ***
16   0.1  0.25  0.25  6  0.5  0.25
END PWAT-PARM4

```

```

PWAT-STATE1
<PLS > *** Initial conditions at start of simulation
ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
# - # *** CEPS  SURS  UZS  IFWS  LZS  AGWS  GWVS
16   0   0   0   0   2.5  1  0
END PWAT-STATE1

```

END PERLND

IMPLND

```

GEN-INFO
<PLS ><-----Name----->  Unit-systems  Printer ***
# - #  User t-series Engl Metr ***
      in out ***
4     ROOF TOPS/FLAT      1  1  1  27  0
8     SIDEWALKS/FLAT     1  1  1  27  0
11    PARKING/FLAT       1  1  1  27  0
END GEN-INFO
*** Section IWATER***

```

```

ACTIVITY
<PLS > ***** Active Sections *****
# - # ATMP SNOW IWAT  SLD  IWG IQAL  ***
4     0   0   1   0   0   0
8     0   0   1   0   0   0
11    0   0   1   0   0   0
END ACTIVITY

```

```

PRINT-INFO
<ILS > ***** Print-flags ***** PIVL  PYR
# - # ATMP SNOW IWAT  SLD  IWG IQAL  *****
4     0   0   4   0   0   0   1  9
8     0   0   4   0   0   0   1  9
11    0   0   4   0   0   0   1  9
END PRINT-INFO

```

```

IWAT-PARM1
<PLS > IWATER variable monthly parameter value flags ***
# - # CSNO RTOP VRS  VNN RTLI  ***
4     0   0   0   0   0
8     0   0   0   0   0
11    0   0   0   0   0

```

END IWAT-PARM1

IWAT-PARM2

```

<PLS > IWATER input info: Part 2 ***
# - # *** LSUR SLSUR NSUR RETSC
4 400 0.01 0.1 0.1
8 400 0.01 0.1 0.1
11 400 0.01 0.1 0.1

```

END IWAT-PARM2

IWAT-PARM3

```

<PLS > IWATER input info: Part 3 ***
# - # ***PETMAX PETMIN
4 0 0
8 0 0
11 0 0

```

END IWAT-PARM3

IWAT-STATE1

```

<PLS > *** Initial conditions at start of simulation
# - # *** RETS SURS
4 0 0
8 0 0
11 0 0

```

END IWAT-STATE1

END IMPLND

SCHEMATIC

```

<-Source-> <--Area--> <-Target-> MBLK ***
<Name> # <-factor-> <Name> # Tbl# ***
Basin 1***
PERLND 16 1.45 RCHRES 1 2
PERLND 16 1.45 RCHRES 1 3
IMPLND 4 0.91 RCHRES 1 5
IMPLND 8 0.14 RCHRES 1 5
IMPLND 11 2.2 RCHRES 1 5

```

*****Routing*****

```

PERLND 16 1.45 COPY 1 12
IMPLND 4 0.91 COPY 1 15
IMPLND 8 0.14 COPY 1 15
IMPLND 11 2.2 COPY 1 15
PERLND 16 1.45 COPY 1 13
RCHRES 1 1 COPY 501 17

```

END SCHEMATIC

NETWORK

```

<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> # <Name> # #<-factor->strg <Name> # # <Name> # # ***
COPY 501 OUTPUT MEAN 1 1 12.1 DISPLY 1 INPUT TIMSER 1

```

```

<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> # <Name> # #<-factor->strg <Name> # # <Name> # # ***

```

END NETWORK

RCHRES

GEN-INFO

```

RCHRES Name Nexits Unit Systems Printer ***
# - #<-----><----> User T-series Engl Metr LKFG ***
1 Trapezoidal Pond-013 2 1 1 1 28 0 1 ***

```

END GEN-INFO

*** Section RCHRES***

ACTIVITY

```

<PLS > ***** Active Sections *****
# - # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***

```


0.888889	0.696685	0.600510	0.196563	0.165034
0.916667	0.698019	0.619881	0.199611	0.165034
0.944444	0.699354	0.639289	0.202613	0.165034
0.972222	0.700690	0.658734	0.205571	0.165034
1.000000	0.702028	0.678216	0.208487	0.165034
1.027778	0.703367	0.697736	0.211363	0.165034
1.055556	0.704707	0.717292	0.214200	0.165034
1.083333	0.706048	0.736886	0.217000	0.165034
1.111111	0.707391	0.756517	0.220418	0.165034
1.138889	0.708735	0.776186	0.227910	0.165034
1.166667	0.710080	0.795891	0.237792	0.165034
1.194444	0.711426	0.815634	0.249415	0.165034
1.222222	0.712774	0.835415	0.262480	0.165034
1.250000	0.714123	0.855233	0.276804	0.165034
1.277778	0.715473	0.875089	0.292259	0.165034
1.305556	0.716825	0.894982	0.308748	0.165034
1.333333	0.718178	0.914912	0.326199	0.165034
1.361111	0.719532	0.934880	0.344550	0.165034
1.388889	0.720887	0.954886	0.363750	0.165034
1.416667	0.722244	0.974930	0.383757	0.165034
1.444444	0.723602	0.995011	0.404533	0.165034
1.472222	0.724961	1.015130	0.426048	0.165034
1.500000	0.726322	1.035287	0.448271	0.165034
1.527778	0.727683	1.055481	0.524314	0.165034
1.555556	0.729046	1.075713	0.661228	0.165034
1.583333	0.730411	1.095984	0.837560	0.165034
1.611111	0.731776	1.116292	1.045364	0.165034
1.638889	0.733143	1.136638	1.279609	0.165034
1.666667	0.734511	1.157022	1.536353	0.165034
1.694444	0.735881	1.177444	1.812093	0.165034
1.722222	0.737251	1.197904	2.103477	0.165034
1.750000	0.738623	1.218403	2.407160	0.165034
1.777778	0.739997	1.238939	2.719747	0.165034
1.805556	0.741371	1.259513	3.037777	0.165034
1.833333	0.742747	1.280126	3.357740	0.165034
1.861111	0.744124	1.300777	3.676107	0.165034
1.888889	0.745502	1.321466	3.989386	0.165034
1.916667	0.746882	1.342194	4.294184	0.165034
1.944444	0.748263	1.362960	4.587282	0.165034
1.972222	0.749645	1.383764	4.865714	0.165034
2.000000	0.751028	1.404607	5.126865	0.165034
2.027778	0.752413	1.425488	5.368564	0.165034
2.055556	0.753799	1.446408	5.589193	0.165034
2.083333	0.755186	1.467366	5.787796	0.165034
2.111111	0.756575	1.488362	5.964194	0.165034
2.138889	0.757965	1.509398	6.119113	0.165034
2.166667	0.759356	1.530472	6.254307	0.165034
2.194444	0.760748	1.551584	6.372691	0.165034
2.222222	0.762142	1.572735	6.478482	0.165034
2.250000	0.763537	1.593925	6.577335	0.165034
2.277778	0.764933	1.615154	6.757436	0.165034
2.305556	0.766331	1.636422	6.869974	0.165034
2.333333	0.767729	1.657728	6.980610	0.165034
2.361111	0.769129	1.679073	7.089436	0.165034
2.388889	0.770531	1.700458	7.196540	0.165034
2.416667	0.771933	1.721881	7.302001	0.165034
2.444444	0.773337	1.743343	7.405894	0.165034
2.472222	0.774742	1.764844	7.508286	0.165034
2.500000	0.776149	1.786384	7.609242	0.165034

END FTABLE 1

END FTABLES

EXT SOURCES

<-Volume->	<Member>	SsysSgap<--Mult-->	Tran	<-Target	vols>	<-Grp>	<-Member->	***			
<Name>	#	<Name>	#	tem	strg<-factor->	strg	<Name>	#	#	***	
WDM	2	PREC		ENGL	0.8	SUM	PERLND	1	999	EXTNL	PREC
WDM	2	PREC		ENGL	0.8	SUM	IMPLND	1	999	EXTNL	PREC
WDM	1	EVAP		ENGL	0.76		PERLND	1	999	EXTNL	PETINP
WDM	1	EVAP		ENGL	0.76		IMPLND	1	999	EXTNL	PETINP

END EXT SOURCES

EXT TARGETS

<-Volume->	<-Grp>	<-Member->	<--Mult-->	Tran	<-Volume->	<Member>	Tsys	Tgap	Amd	***	
<Name>	#	<Name>	#	<-factor->	strg	<Name>	#	<Name>	tem	strg	strg***
RCHRES	1	HYDR	RO	1	1	1	WDM	1018	FLOW	ENGL	REPL
RCHRES	1	HYDR	O	1	1	1	WDM	1019	FLOW	ENGL	REPL
RCHRES	1	HYDR	O	2	1	1	WDM	1020	FLOW	ENGL	REPL
RCHRES	1	HYDR	STAGE	1	1	1	WDM	1021	STAG	ENGL	REPL
COPY	1	OUTPUT	MEAN	1	1	12.1	WDM	701	FLOW	ENGL	REPL
COPY	501	OUTPUT	MEAN	1	1	12.1	WDM	801	FLOW	ENGL	REPL

MASS-LINK

<Volume>	<-Grp>	<-Member->	<--Mult-->	<Target>	<-Grp>	<-Member->	***		
<Name>	#	<Name>	#	<-factor->	<Name>	#	<Name>	#	***
MASS-LINK		2							
PERLND	PWATER	SURO		0.083333	RCHRES	INFLOW	IVOL		
END MASS-LINK		2							
MASS-LINK		3							
PERLND	PWATER	IFWO		0.083333	RCHRES	INFLOW	IVOL		
END MASS-LINK		3							
MASS-LINK		5							
IMPLND	IWATER	SURO		0.083333	RCHRES	INFLOW	IVOL		
END MASS-LINK		5							
MASS-LINK		12							
PERLND	PWATER	SURO		0.083333	COPY	INPUT	MEAN		
END MASS-LINK		12							
MASS-LINK		13							
PERLND	PWATER	IFWO		0.083333	COPY	INPUT	MEAN		
END MASS-LINK		13							
MASS-LINK		15							
IMPLND	IWATER	SURO		0.083333	COPY	INPUT	MEAN		
END MASS-LINK		15							
MASS-LINK		17							
RCHRES	OFLOW	OVOL	1		COPY	INPUT	MEAN		
END MASS-LINK		17							

END MASS-LINK

END RUN

Predeveloped HSPF Message File

Mitigated HSPF Message File

Disclaimer

Legal Notice

This program and accompanying documentation are provided 'as-is' without warranty of any kind. The entire risk regarding the performance and results of this program is assumed by End User. Clear Creek Solutions Inc. and the governmental licensee or sublicensees disclaim all warranties, either expressed or implied, including but not limited to implied warranties of program and accompanying documentation. In no event shall Clear Creek Solutions Inc. be liable for any damages whatsoever (including without limitation to damages for loss of business profits, loss of business information, business interruption, and the like) arising out of the use of, or inability to use this program even if Clear Creek Solutions Inc. or their authorized representatives have been advised of the possibility of such damages. Software Copyright © by : Clear Creek Solutions, Inc. 2005-2022; All Rights Reserved.

Clear Creek Solutions, Inc.
6200 Capitol Blvd. Ste F
Olympia, WA. 98501
Toll Free 1(866)943-0304
Local (360)943-0304

www.clearcreeksolutions.com

APPENDIX 6

PRELIMINARY CIVIL PLANS

JSA CIVIL

Engineering | Planning | Management

APPLICANT
RALPH HUBERT
154 CREEKWOOD LANE
CENTRALIA, WA 98531
PHONE: (360) 508-4500
RALPH@POWERSPORTSNORTHWEST.COM

SITE ADDRESS
197 N HAMILTON ROAD
CHEHALIS, WA 98532

PARCEL NUMBERS
01789701001, 01789600614

ZONING
CG-GENERAL COMMERCIAL

ENGINEER
JSA CIVIL
6945 LITTLEROCK ROAD, SUITE A
TUMWATER, WA 98512
PHONE: 360.269.6346
CONTACT: BRANDON JOHNSON, PE

SURVEYOR
FORESIGHT SURVEYING, INC
1583 N. NATIONAL AVE
CHEHALIS, WA 98532
PHONE: 360.748.4000
CONTACT: BRITTNEE R. RAINS

GOVERNING AGENCY
CITY OF CHEHALIS
PHONE: (360) 345-1042

UTILITIES
SEWER/WATER
CITY OF CHEHALIS
PHONE: (360) 748-0238

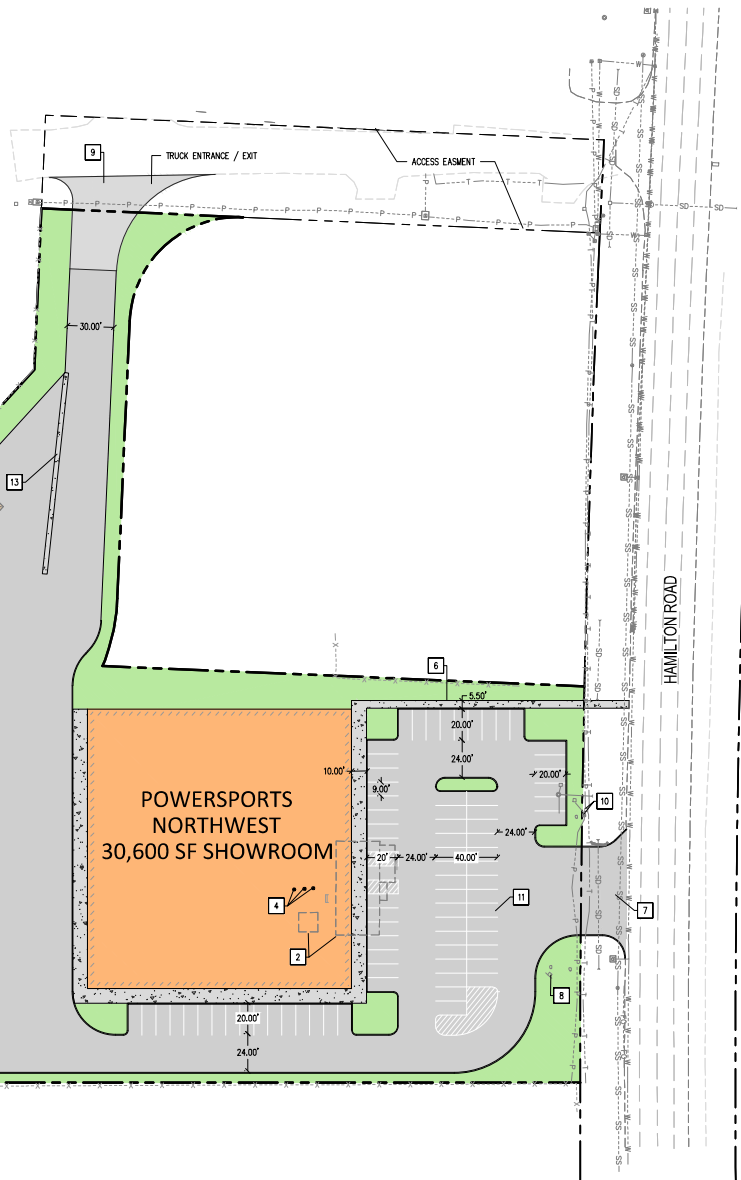
PHONE
COMCAST
PHONE: (800) 934-6489

POWER / GAS
FUELET SOUND ENERGY
PHONE: (888) 225-5773

CABLE
COMCAST
PHONE: (800) 934-6489

HORIZONTAL DATUM
HOLDING CONTROL BEARINGS PER LEWIS COUNTY RECORD OF
SURVEY RECORDED UNDER APN: 3564982

VERTICAL DATUM
NAVD 88: HOLDING RESCOT PUBLISHED CONTROL MON
GP21005-75 AT ELEVATION 232.788 USFT



LEGEND

- PROPERTY LINE
- CONCRETE CURB & GUTTER
- CEMENT CONCRETE SIDEWALK (0.14 ACRES)
- CONCRETE PAVING (0.06 ACRES)
- PROPOSED BUILDING (0.89 ACRES)
- EXISTING BUILDING (0.02 ACRES)
- LANDSCAPING/STORM/OPEN (1.45 ACRES)
- ASPHALT PAVING (2.20 ACRES)

CONSTRUCTION NOTES

1. EXISTING BUILDING TO REMAIN
2. EXISTING BUILDING TO BE REMOVED
3. EXISTING WELL TO BE DECOMMISSIONED
4. EXISTING SEPTIC TANK AND DRAINFIELD TO BE REMOVED
5. POND: SEE CG & SD PLANS
6. ADA PATHWAY TO PUBLIC R/W
7. EXISTING DRIVEWAY TO REMAIN
8. EXISTING SIGN TO REMAIN AND BE REPURPOSED.
9. TRUCK ACCESS
10. EXISTING UTILITY TO REMAIN
11. 20'X9' AUTO PARKING (TYP)
12. 65'X10' TRAILER PARKING (TYP)
13. 3' WIDE CONCRETE VALLEY GUTTER



SITE DATA

TPN	01789701001 & 01789600614
PARCEL AREA	± 4.70 ACRES
EXISTING BUILDING	± 1,200 SF (WAREHOUSE)
NEW BUILDING 1	30,600 SF (SHOWROOM)
NEW BUILDING 2	8,000 SF (WAREHOUSE)

PARKING DATA

TYPE	TOTAL	ADA
AUTOMOBILE	77	4
TRAILER / RV	19	
TOTAL PARKING	96	4

REV.	DATE	COMMENT	BY
0	12/20/21	ISSUED FOR REVIEW	BLJ
1	10/21/22	UPDATED W/ SURVEY	BLJ

DRAWN BY: L. SATER
CHECKED BY: B. JOHNSON

SCALE:

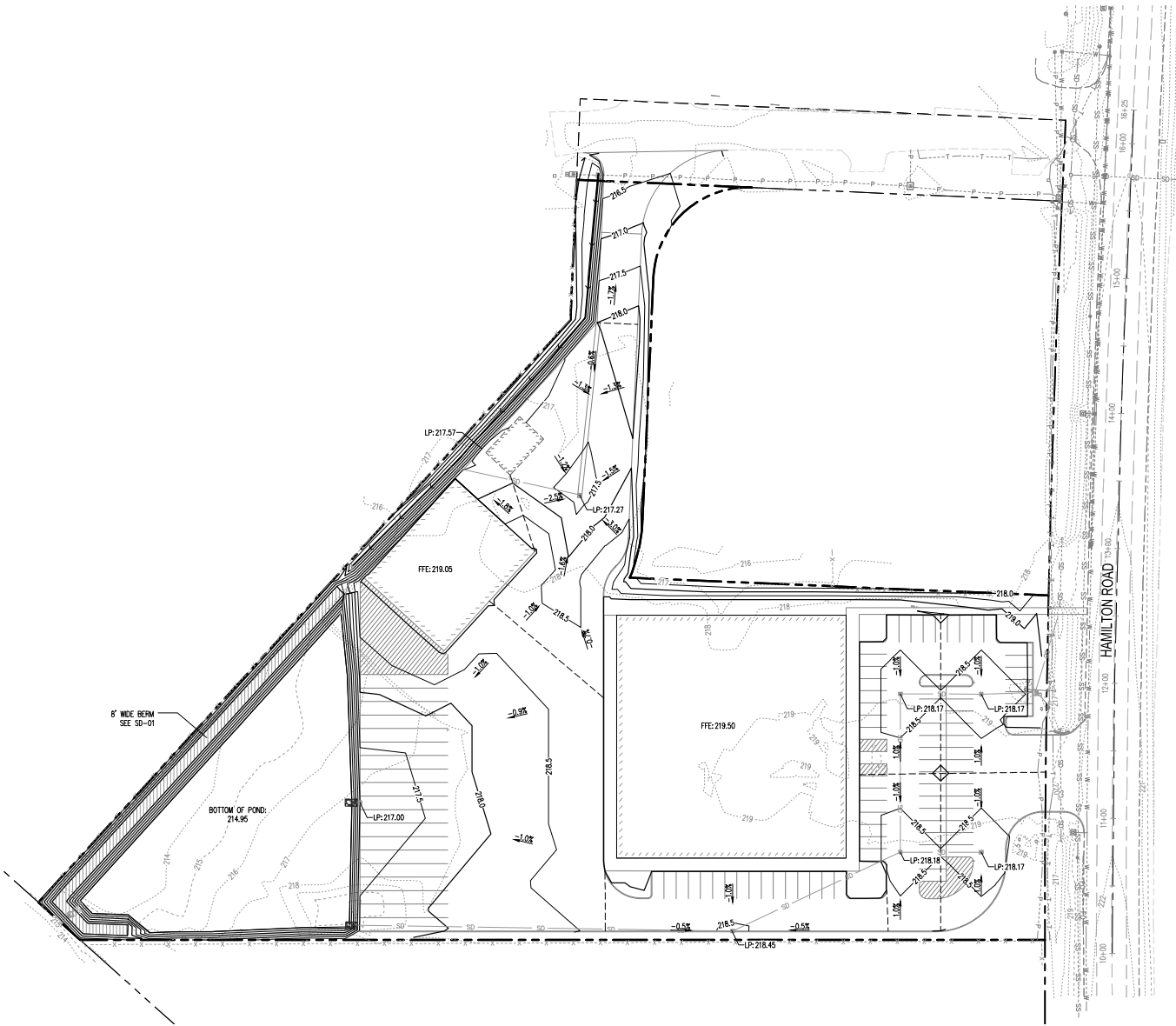
SCALE IN FEET

PRELIMINARY



Nov 01, 2022 1:16:26pm - User: b.johnson
N:\2 - PROJECTS\145 RALPH HUBERT\145001 197 N HAMILTON ROAD COMMERCIAL DEV\145001_V01.DWG

Nov 01, 2023 11:16:27am - User: b.johnson
 N:\3 - PROJECTS\145 PAJPA\145001\14501 197 HAMILTON ROAD COMMERCIAL DEV\CAD\VAL001 CG-01.DWG



LEGEND

- PROPERTY LINE
- - - EASEMENT
- EXST. CONTOURS
- PROPOSED CONTOURS
- EXISTING EDGE OF PAVEMENT
- ☀ EXISTING TREE
- EXISTING FENCE
- ▨ PROPOSED BUILDING
- STORM LINE
- CATCH BASIN
- - - GRADE BREAK
- XXX.XX SPOT ELEVATION
- XXX.XX LP LOW POINT ELEVATION



SITE DATA

TPN	01789701001 & 01789600614
PARCEL AREA	± 4.70 ACRES
EXISTING BUILDING	± 1,200 SF (WAREHOUSE)
NEW BUILDING 1	30,600 SF (SHOWROOM)
NEW BUILDING 2	8,000 SF (WAREHOUSE)

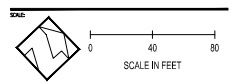
PARKING DATA

TYPE	TOTAL	ADA
AUTOMOBILE	77	4
TRAILER / RV	19	
TOTAL PARKING	96	4

REV.	DATE	COMMENT	BY
0	12/20/21	ISSUED FOR REVIEW	BLJ
1	10/21/22	UPDATED W/ SURVEY	BLJ

DRAWN BY: L. SATER
 CHECKED BY: B. JOHNSON

SCALE: **PRELIMINARY**





VICINITY MAP (NTS)

LEGEND

- PROPERTY LINE
- - - EASEMENT
- EXIST. CONTOURS
- - - PROPOSED CONTOURS
- EXISTING EDGE OF PAVEMENT
- ☼ EXISTING TREE
- - - EXISTING FENCE
- PROPOSED BUILDING
- W WATER LINE
- SS SEWER LINE
- SD STORM LINE
- CATCH BASIN

SITE DATA

TPN	01789701001 & 01789600614
PARCEL AREA	± 4.73 ACRES
EXISTING BUILDING	± 1,200 SF (WAREHOUSE)
NEW BUILDING 1	30,600 SF (SHOWROOM)
NEW BUILDING 2	8,000 SF (WAREHOUSE)

PARKING DATA

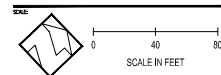
TYPE	TOTAL	ADA
AUTOMOBILE	77	4
TRAILER / RV	19	
TOTAL PARKING	96	4

REV.	DATE	COMMENT	BY
0	12/20/21	ISSUED FOR REVIEW	BLJ
1	10/21/22	UPDATED W/ SURVEY	BLJ

DRAWN BY: L. SATER
 CHECKED BY: B. JOHNSON

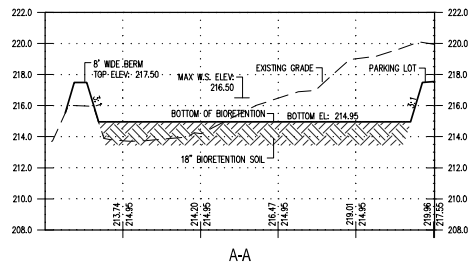
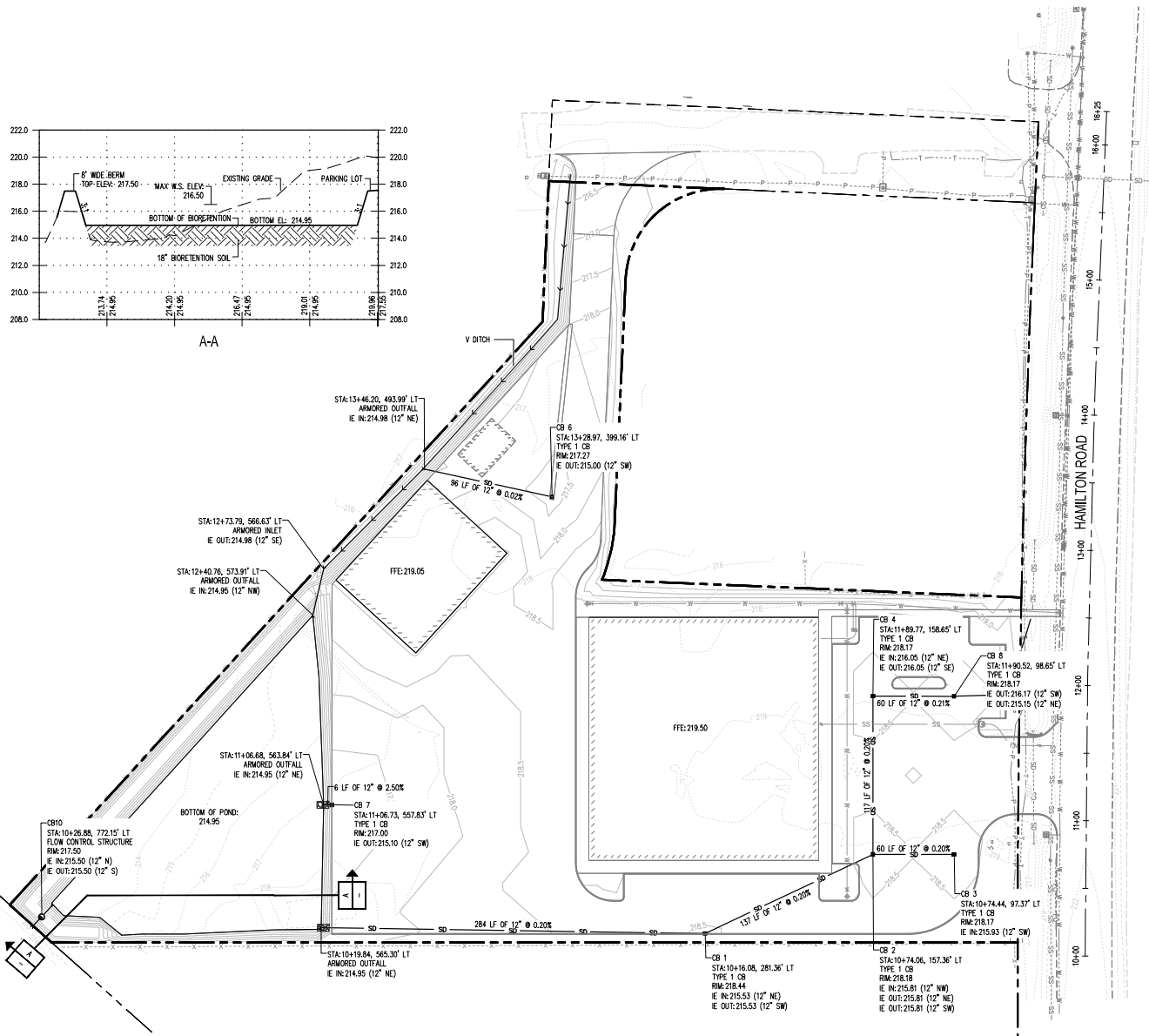
SCALE:

PRELIMINARY



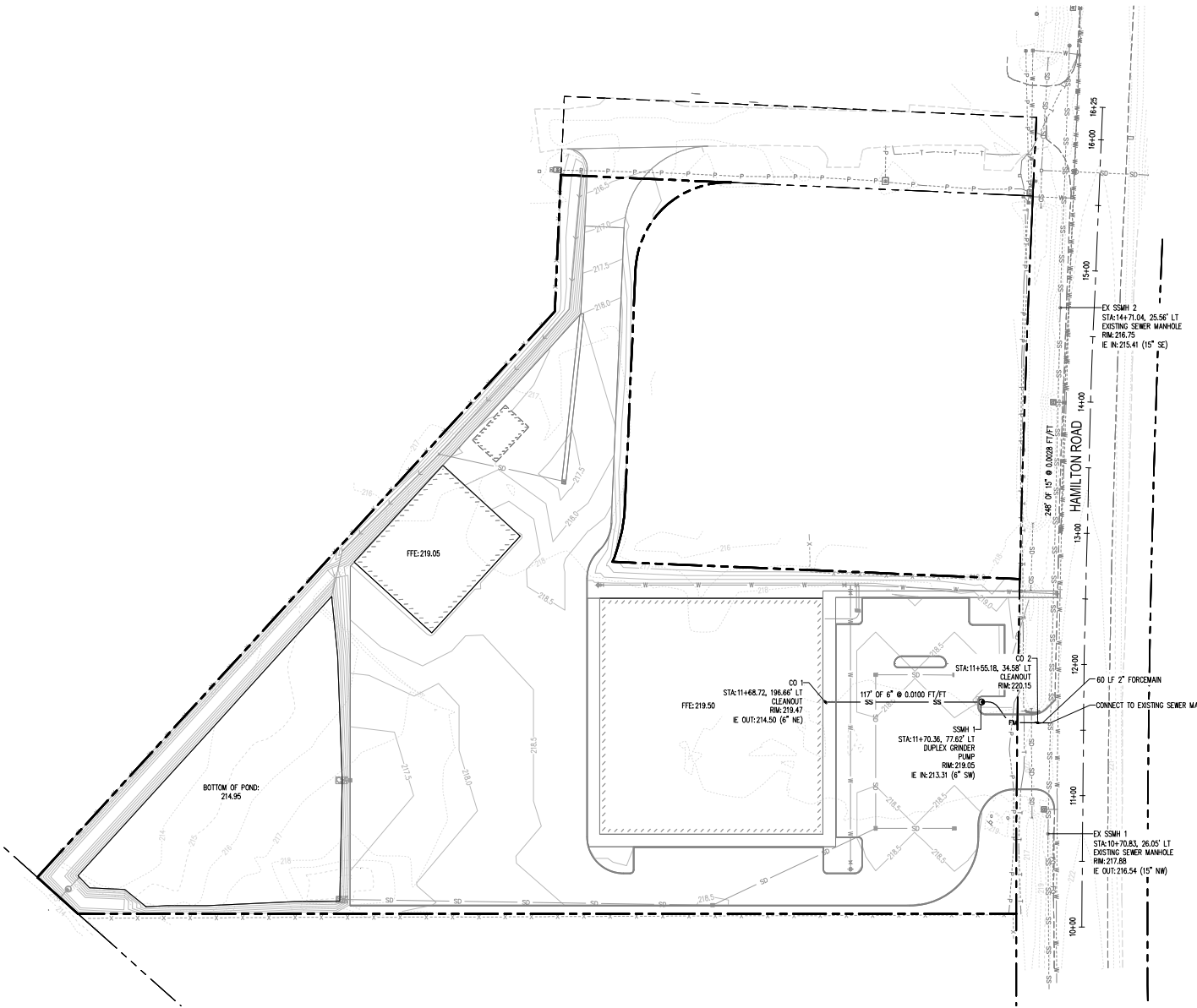
9601 T16: STORM PLAN

9601 S1: **SD-01**



Nov 01, 2022 1:17:03PM - User: bjohnson
 N:\2 - PROJECTS\145 PMPH\145001\14501 197 H HAMILTON ROAD COMMERCIAL DEVELOPMENT\SD-01.dwg

Nov 01, 2023, 1:12:21pm - User: bjohnson
 N:\3 - PROJECTS\145 HAMILTON ROAD\145001\145001_197 HAMILTON ROAD COMMERCIAL DEVELOPMENT\145001_SS-COLLINE



LEGEND

- PROPERTY LINE
- EASEMENT
- EXISTING EDGE OF PAVEMENT
- EXISTING TREE
- EXISTING FENCE
- PROPOSED BUILDING
- SS SEWER LINE
- STORM LINE
- WATER LINE
- FM FORCE MAIN
- GRINDER PUMP
- SEWER CLEANOUT



SITE DATA

TPN	01789701001 & 01789600614
PARCEL AREA	± 4.70 ACRES
EXISTING BUILDING	± 1,200 SF (WAREHOUSE)
NEW BUILDING 1	30,600 SF (SHOWROOM)
NEW BUILDING 2	8,000 SF (WAREHOUSE)

PARKING DATA

TYPE	TOTAL	ADA
AUTOMOBILE	77	4
TRAILER / RV	19	
TOTAL PARKING	96	4

REV.	DATE	COMMENT	BY
0	12/20/21	ISSUED FOR REVIEW	BLJ
1	10/21/22	UPDATED W/ SURVEY	BLJ

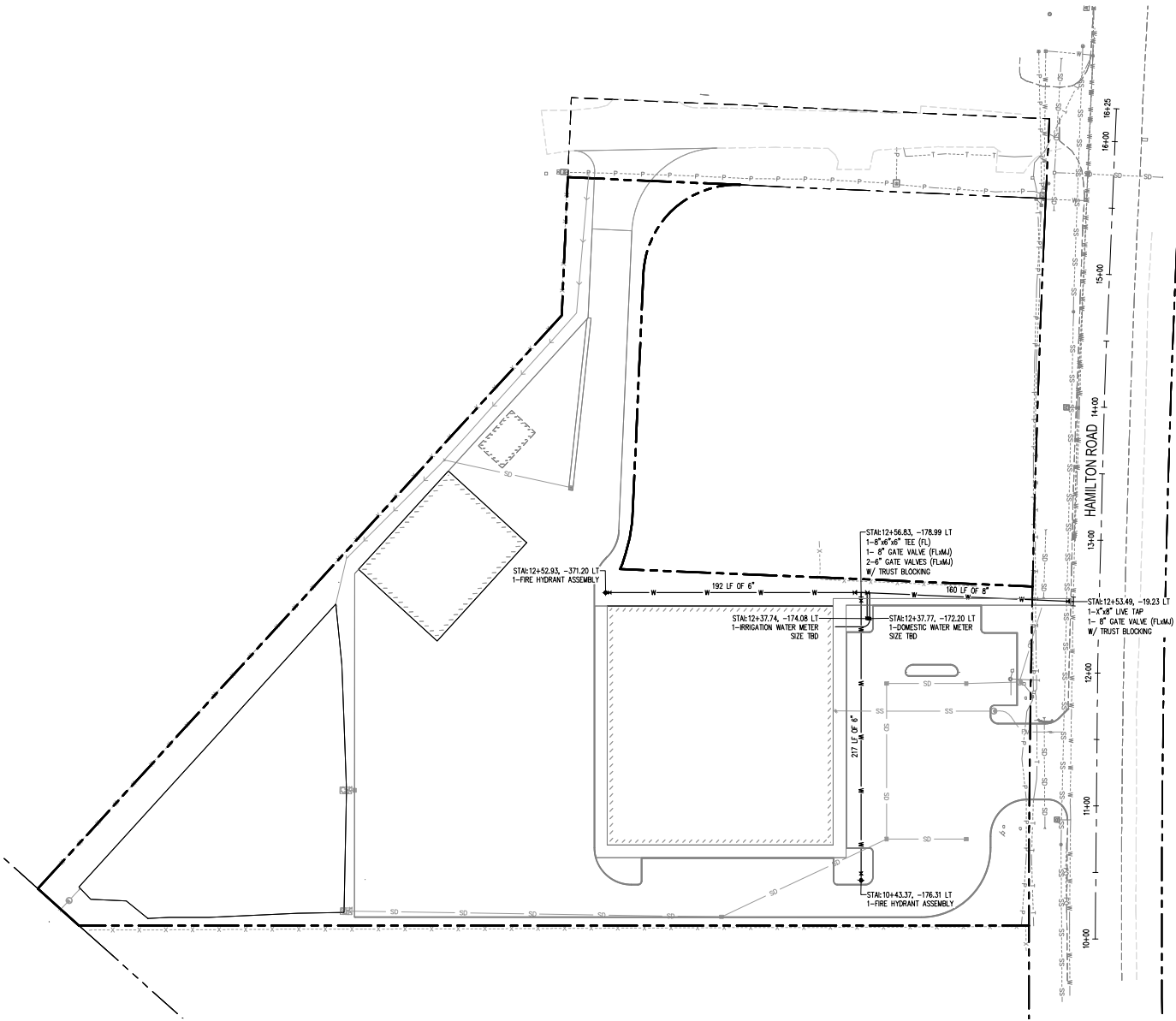
DRAWN BY: L. SATER
 CHECKED BY: B. JOHNSON

PRELIMINARY

SCALE: 0 40 80
 SCALE IN FEET



Nov 01, 2022 1:12:56pm - User: b.johnson
 N:\2 - PROJECTS\145 PAUPH HUBERT\VAL001 197 H HAMILTON ROAD COMMERCIAL DEV\VAL001\VAL01 WT-01.DWG



- LEGEND**
- PROPERTY LINE
 - - - EASEMENT
 - - - EXISTING EDGE OF PAVEMENT
 - ⊙ EXISTING TREE
 - X - X - EXISTING FENCE
 - ▨ PROPOSED BUILDING
 - SS SEMER LINE
 - SD STORM LINE
 - W WATER LINE
 - WS WATER SERVICE LINE
 - ◆ FIRE HYDRANT
 - FDC
 - FIV
 - ✱ BLOWOFF ASSEMBLY
 - x GATE VALVE



SITE DATA

TPN	01789701001 & 01789600614
PARCEL AREA	± 4.70 ACRES
EXISTING BUILDING	± 1,200 SF (WAREHOUSE)
NEW BUILDING 1	30,600 SF (SHOWROOM)
NEW BUILDING 2	8,000 SF (WAREHOUSE)

PARKING DATA

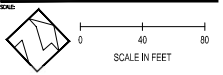
TYPE	TOTAL	ADA
AUTOMOBILE	77	4
TRAILER / RV	19	
TOTAL PARKING	96	4

REV.	DATE	COMMENT	BY
0	12/20/21	ISSUED FOR REVIEW	BLJ
1	10/21/22	UPDATED W/ SURVEY	BLJ

DRAWN BY: L. SATER
 CHECKED BY: B. JOHNSON

SCALE:

PRELIMINARY



SHEET TITLE: WATER PLAN

SHEET NO: WT-01