PLANNING COMMISSION
STAFF EVALUATION - FIRST REVIEW

APPLICATION NO: 25-023A
APPLICANT: Carlyle Creger, Carlyle Machine
PROPERTY OWNER: Carlyle Creger LLC
PROPERTY ADDRESS: 1671 East 145 South
PARCEL NUMBER: 01-170-0002
PARCEL AREA: 1.00 Acres
CURRENT ZONE: Manufacturing Zone M-2
DATE: June 10, 2025

PLANNING COMMISSION MEETING: June 12, 2025
PLANNING COMMISSION ROLE: Recommending Body to City Council
APPLICATION TYPE: Site Plan Approval

NATURE OF REQUEST:
Permitted Use – Manufacturing (no excessive noise, dust, smoke or odor).

CURRENT ZONING DISTRICT:
The purpose of this zone is to provide an area where medium to heavy manufacturing can occur. It allows higher levels of noise, dust, smoke and odor than is permitted in the M-1 Zone. Restrictions may be applied on proposed businesses whose levels of noise, dust, smoke or odor may be considered excessive by the planning commission. Design and landscaping requirements may also be imposed on businesses proposed for this zone.

OVERVIEW:
The applicant desires to construct a new 10,950 sq. ft. metal building. 7,950 sq. ft. will be used by the applicant to manufacture prototypes in the medical industry that are typically within the scale of two-inch (2") square. The remaining 3,000 sq. ft. of the building will be lease space. The 1-acre lot will be improved with an asphalt parking lot with landscaping areas on the south side and rock landscaping on the other remaining sides.

UTILITIES: Existing Power, Sewer, Water.

STAFF COMMENTS:
Planning and Zoning:
1. Each site plan shall include a lighting plan that is designed to discourage crime, enhance the safety of the project, and the parking lot and structure shall be well lit while preventing glare onto adjacent properties with dark-sky initiatives. Please submit the required lighting plan for Site Plan Approval. See HCC 17.49.022.
2. "Landscape Design By Others" is identified on Site & Utility Plan Sheet 1.1 but not provided for Site Plan Approval. Please submit the required landscape plan and appropriate maintenance plan for Site Plan Approval. See HCC 17.49.025.
3. Staff supports the parking proposed parking count, provided the property maintains compliance with HCC 17.49.060 Off-Street Parking – Specific Requirements to provide one (1) space for

each employee working on the highest employment shift for manufacturing, processing or repair uses; and the remaining 3,000 sq. ft. future tenant improvements maintains:
   a. Storage or warehouse: one (1) space for each five thousand (5,000) square feet of floor area;
   b. Manufacturing, processing or repair: one (1) space for each employee working on the highest employment shift; the City Council may adjust this requirement if sufficient justification is provided.
4. The driveway widths proposed are forty feet (40') wide. Each roadway shall not be more than thirty-six feet (36') in width. See HCC 17.49.090.
5. A pedestrian opening on one wall of the enclosure for employee access to the dumpster shall be required. See HCC 17.49.105.
6. A building permit will be required through a separate application. See HCC Title 15 Building and Construction for building permit requirements.
7. A sign permit will be required through a separate application if the applicant desires to advertise on the site. See HCC 17.72 Signs for sign requirements.
8. All construction shall be coordinated and conform to Hyrum City Design Standards and Construction Specifications for Public Works when applicable.

Engineering:

1. See attachments.

Fire Department:

1. Supports the site plan.

Power Department:

1. Light & Power request that both the general contractor and the electrical contractor meet with department staff regarding expectations and installation standards of electrical utility and equipment.
2. Previous communication with Mr. Creger has taken place and some discussion on the transformer has happened, transformer is ordered and paid for.
3. Location of transformer and metering equipment looks acceptable.
4. There will need to be a 3-phase junction can installed on east side of property in the park strip to accommodate the connection of the transformer.
5. Associated costs relevant to the project, excluding the previously paid for transformer, will be updated.

Water & Roads:

1. Please verify that the lateral and meter pit is not already stubbed into site before excavation of the road (most parcels in this area were pre-installed). For installation, please follow Hyrum city standards and remember sewer and water must maintain 10 feet of horizontal separation.
2. The water meter pit shall provide and maintain three feet (3') clearance from the back of the concrete curb, bank of detention pond, and landscape planting materials such as shrubs and trees.

Water Reclamation:

1. A lateral cleanout is located outside of structure per standard; however, cleanouts need to be installed at 50' intervals on 4" laterals which is not shown on the drawing. Refer to Construction Standard, 5.2.2.F.
2. If a cleanout must be placed in asphalted streets, a cast iron frame and cover should be used. Refer to drawing 5-36.

PLANNING COMMISSION RESPONSIBILITY:

1. The Planning Commission should have a thorough discussion of the site plan, staff comments, and specifying conditions and requirements for approval.

STAFF RECOMMENDATION:

1. Staff recommends the Planning Commission include in their motion the lighting plan required by HCC 17.49.022 prior to the City Council meeting.
2. Staff recommends the Planning Commission include in their motion the landscaping plan and appropriate maintenance plan required by HCC 17.49.025 prior to the City Council meeting.
3. Staff recommends the Planning Commission make a motion specifying conditions and requirements, and staff comments to the City Council.

STIPULATIONS:

1. The City Council may approve, disapprove, approve with additional conditions and requirements, or require the requestor to return to the Planning Commission with revisions; or require the applicant to return revisions to the City Council.
2. The applicant is required to include a lighting plan to the City Council.
3. The applicant is required to include a landscape plan and appropriate maintenance plan to the City Council.

FINDINGS OF FACT:

1. Manufacturing (no excessive noise, dust, smoke or odor) is a Permitted Use in the Manufacturing Zone M-2.

ATTACHMENTS:

1. ArcGIS Web Map
2. Main Floor Plan and Building Elevations
3. Site Plans
4. Erosion Control Plan
5. Stormwater Calculations
6. Soils Resource Report

ArcGIS Web Map

5/20/2025, 3:40:31 PM

1:2,257

0 0.01 0.03 0.05 mi

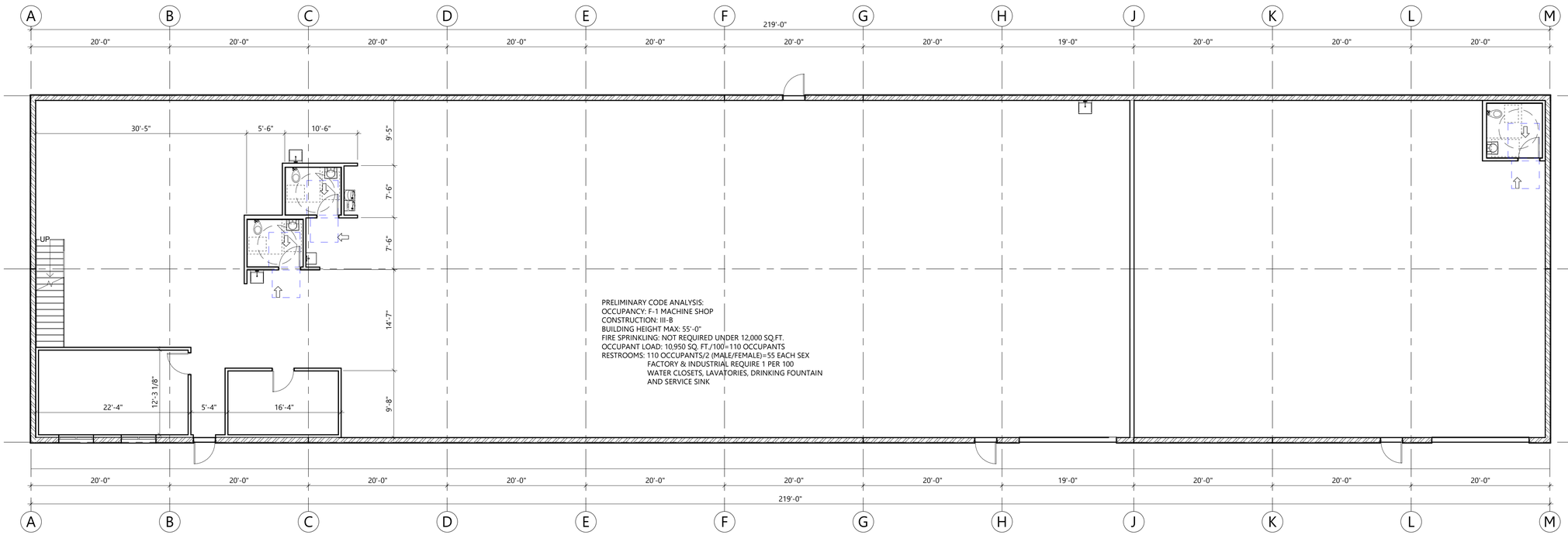
0 0.02 0.04 0.09 km

Maxar, Microsoft

ArcGIS Web AppBuilder

KEYNOTES

#	DESCRIPTION



A3 OVERALL FLOOR PLAN
SCALE: 1/8" = 1'-0"

CARTWRIGHT
ARCHITECTS & ENGINEERS

635 SOUTH 100 EAST
LOGAN, UT 84341
T435 753.2850
F435 753.2851

http://www.cartwright-aec.com

PROFESSIONAL STAMP

AGENCY APPROVAL

CREGER MACHINE

1671 E. 145 S. HYRUM, UT

CARTWRIGHT PROJECT #	125017
DATE:	03/12/2025
DRAWN BY:	CW
CHECKED BY:	CW
APPROVED BY:	JC

REVISIONS

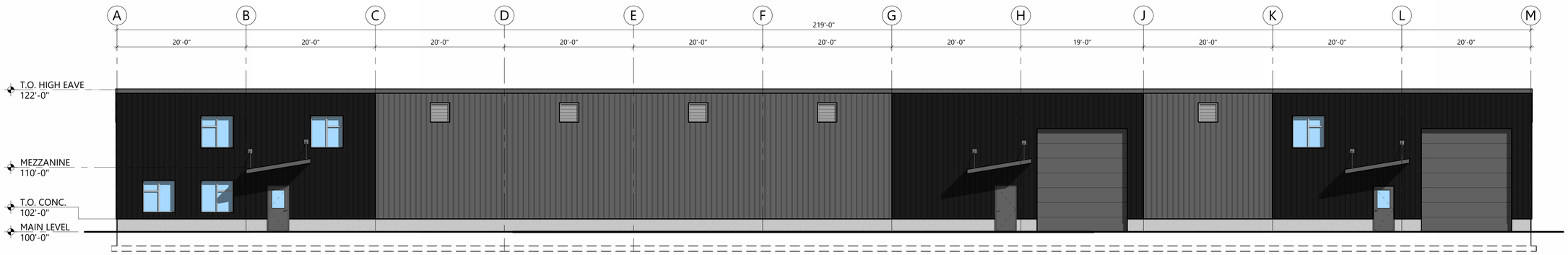
#	DATE	DESCRIPTION

FLOOR PLAN

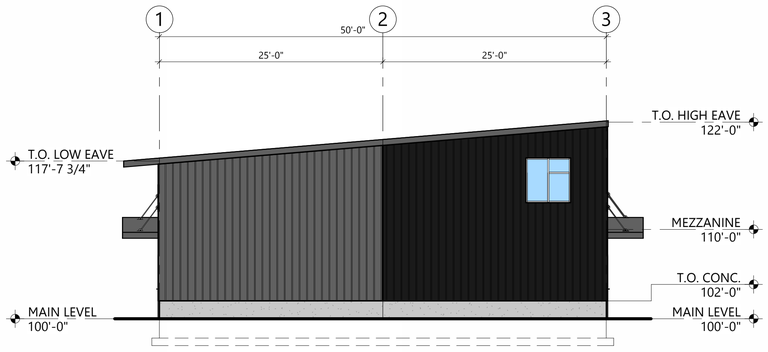
A101

FOR PERMIT

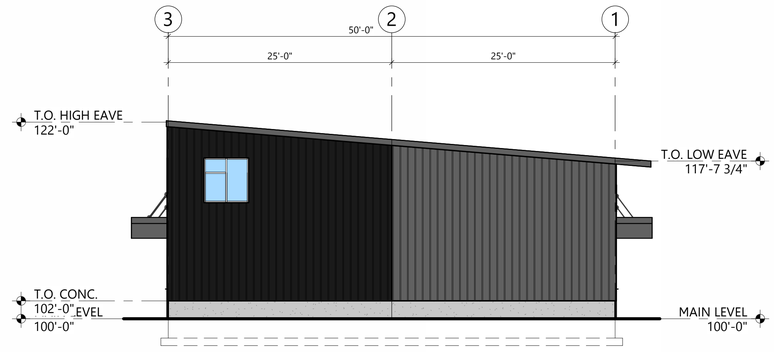
4/15/2025 3:28:27 PM



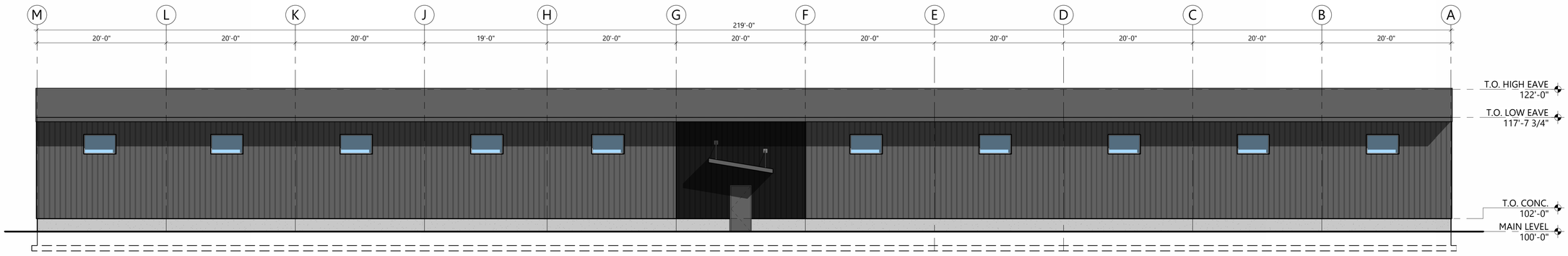
C3 SOUTH EXTERIOR ELEVATION
SCALE: 1/8" = 1'-0"



B2 WEST EXTERIOR ELEVATION
SCALE: 1/8" = 1'-0"



B5 EAST EXTERIOR ELEVATION
SCALE: 1/8" = 1'-0"



A3 NORTH EXTERIOR ELEVATION
SCALE: 1/8" = 1'-0"

KEYNOTES

#	DESCRIPTION

CARTWRIGHT
ARCHITECTS & ENGINEERS

635 SOUTH 100 EAST
LOGAN, UT 84341
T435 753.2850
F435 753.2851

http://www.cartwright-aec.com

PROFESSIONAL STAMP

AGENCY APPROVAL

CREGER MACHINE

1671 E. 145 S. HYRUM, UT

CARTWRIGHT PROJECT #	125017
DATE:	03/12/2025
DRAWN BY:	CW
CHECKED BY:	CW
APPROVED BY:	CW

#	DATE	REVISIONS DESCRIPTION

ARCHITECTURAL ELEVATIONS

A201

4/15/2025 3:28:29 PM

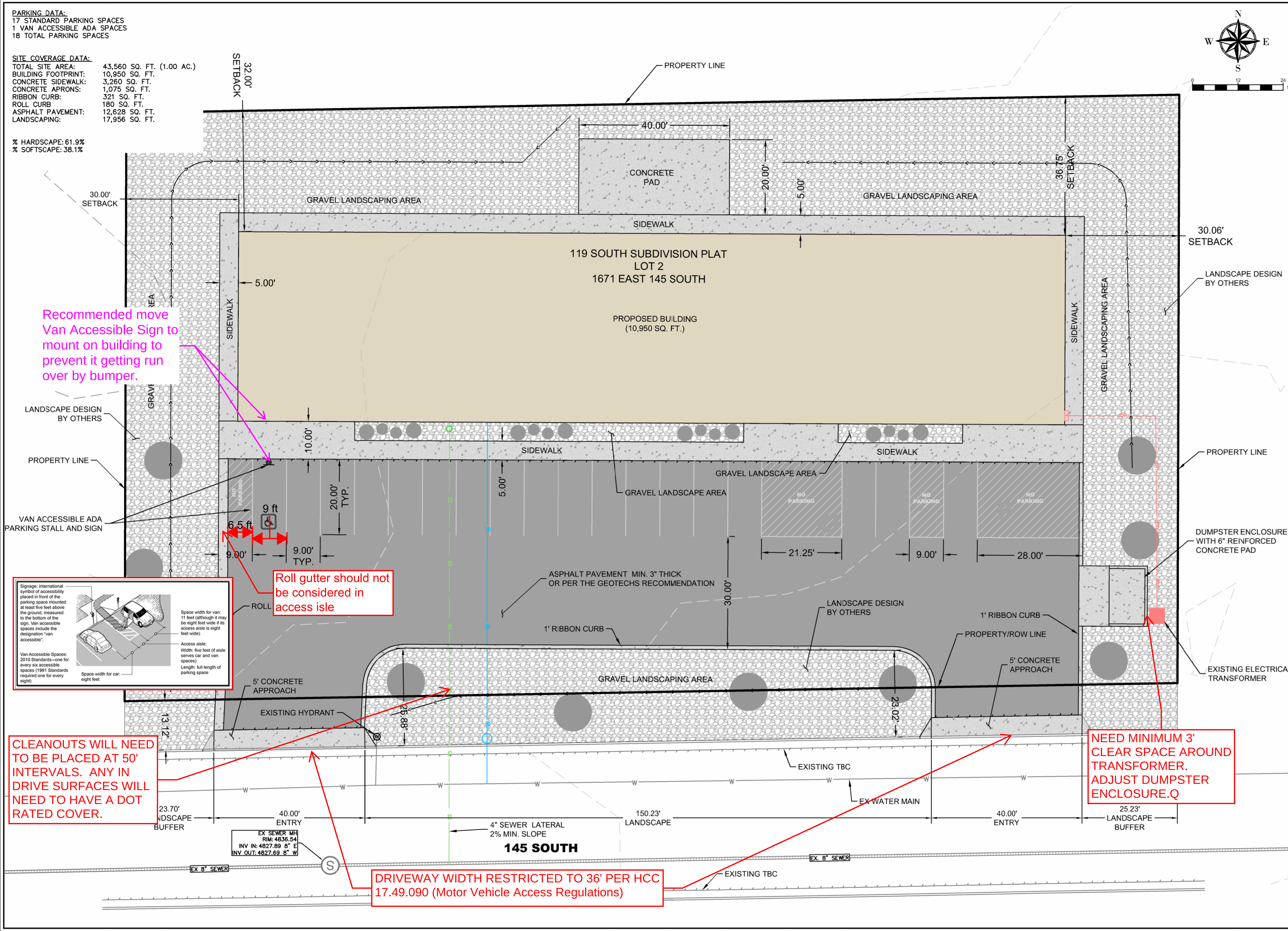
FOR PERMIT

PARKING DATA:
17 STANDARD PARKING SPACES
1 VAN ACCESSIBLE ADA SPACES
18 TOTAL PARKING SPACES

SITE COVERAGE DATA:

TOTAL SITE AREA:	43,560 SQ. FT. (1.00 AC.)
BUILDING FOOTPRINT:	10,950 SQ. FT.
CONCRETE SIDEWALK:	3,260 SQ. FT.
CONCRETE APRONS:	1,075 SQ. FT.
RIBBON CURB:	321 SQ. FT.
ROLL CURB	180 SQ. FT.
ASPHALT PAVEMENT:	12,628 SQ. FT.
LANDSCAPING:	17,956 SQ. FT.

% HARDSCAPE: 61.9%
% SOFTSCAPE: 38.1%



PROPERTY LINE
32.00' SETBACK
40.00'
CONCRETE PAD
20.00'
5.00'
36.75' SETBACK
GRAVEL LANDSCAPING AREA
GRAVEL LANDSCAPING AREA
30.00' SETBACK
30.06' SETBACK
SIDEWALK
119 SOUTH SUBDIVISION PLAT
LOT 2
1671 EAST 145 SOUTH
PROPOSED BUILDING
(10,950 SQ. FT.)
5.00'
SIDEWALK
SIDEWALK
GRAVEL LANDSCAPING AREA
LANDSCAPE DESIGN BY OTHERS
Recommended move Van Accessible Sign to mount on building to prevent it getting run over by bumper.
LANDSCAPE DESIGN BY OTHERS
PROPERTY LINE
10.00'
SIDEWALK
SIDEWALK
GRAVEL LANDSCAPE AREA
GRAVEL LANDSCAPE AREA
PROPERTY LINE
20.00' TYP.
5.00'
NO PARKING
VAN ACCESSIBLE ADA PARKING STALL AND SIGN
9 ft
6.5 ft
9.00'
9.00' TYP.
21.25'
9.00'
28.00'
DUMPSTER ENCLOSURE WITH 6" REINFORCED CONCRETE PAD
Roll gutter should not be considered in access isle
ASPHALT PAVEMENT MIN. 3" THICK OR PER THE GEOTECHS RECOMMENDATION
30.00'
LANDSCAPE DESIGN BY OTHERS
1' RIBBON CURB
1' RIBBON CURB
PROPERTY/ROW LINE
ROLL
Signage: international symbol of accessibility placed in front of the parking space mounted at least five feet above the ground, measured to the bottom of the sign. Van accessible spaces include the designation "van accessible".
Van Accessible Spaces: 2010 Standards—one for every six accessible spaces (1991 Standards required one for every eight)
Space width for car: eight feet
Space width for van: 11 feet (although it may be eight feet wide if its access aisle is eight feet wide)
Access aisle: Width: five feet (if aisle serves car and van spaces) Length: full length of parking space
5' CONCRETE APPROACH
5' CONCRETE APPROACH
GRAVEL LANDSCAPING AREA
EXISTING ELECTRICAL TRANSFORMER
EXISTING HYDRANT
25.88'
23.02'
13.12'
NEED MINIMUM 3' CLEAR SPACE AROUND TRANSFORMER. ADJUST DUMPSTER ENCLOSURE.Q
CLEANOUTS WILL NEED TO BE PLACED AT 50' INTERVALS. ANY IN DRIVE SURFACES WILL NEED TO HAVE A DOT RATED COVER.
EXISTING TBC
EX WATER MAIN
23.70' LANDSCAPE BUFFER
40.00' ENTRY
150.23' LANDSCAPE
40.00' ENTRY
25.23' LANDSCAPE BUFFER
4" SEWER LATERAL 2% MIN. SLOPE
145 SOUTH
EX SEWER MH RIM: 4836.54 INV IN: 4827.89 8" E INV OUT: 4827.69 8" W
EX 8" SEWER
EX. 8" SEWER
EXISTING TBC
DRIVEWAY WIDTH RESTRICTED TO 36' PER HCC 17.49.090 (Motor Vehicle Access Regulations)

SHEET NOTES

ALL SITE WORK WITHIN RIGHT OF WAY TO COMPLY WITH HYRUM CITY PUBLIC WORKS STANDARD DRAWINGS AND SPECIFICATIONS.

IF HYRUM DOES NOT HAVE A STANDARD OR TYPICAL DETAIL, CONTRACTOR TO FOLLOW ALL APWA STANDARDS AND SPECIFICATIONS. CONTRACTOR TO COORDINATE WITH ALL PUBLIC AND PRIVATE ENTITIES WHILE INSTALLING ALL UTILITIES.

SHEET LEGEND

- EX.MAJOR CONTOUR
- EX. MINOR CONTOUR
- PROP. MAJOR CONTOUR
- PROP. MINOR CONTOUR
- PROP. EDGE OF ASPHALT
- EX. EDGE OF ROAD
- PROP. SHOULDER
- FL SWALE
- EXISTING SEWER MAIN
- EXISTING WATER MAIN

PLAN REVISIONS
A.

RIMROCK ENGINEERING & DEVELOPMENT

CAD TECH:	RJM
DESIGNER:	RJM
Q&A:	JNS

CALL BLUE STAKES PRIOR TO DIGGING

PROJECT NAME
CREGER MACHINE SHOP

SHEET NAME
SITE & UTILITY PLAN

PLAN SUBMITTAL: PRELIM

REVIEW SET 5/12/25

SHEET NUMBER 1.1

5/12/2025

Top elevation? Cross sections?

These backlot "retention ponds" have no freeboard, no apparent emergency outlet, and no means or measures to manage stormwater on/for frozen surface conditions (runoff should not affect or impact adjacent land owners).

Recommended that underground infiltration be incorporated to accommodate infiltration with frozen ground conditions.

LANDSCAPED
RETENTION POND C
RIM: 4835.87
BOTTOM: 4834.75
VOLUME: 1,215 CF.

CONTROL INLET AT POND SURFACE

OVERFLOW FROM ONE POND TO THE NEXT TO ALLOW EXCESS WATER TO DRAIN TO HELP PREVENT HYD. TRESPASS

RETENTION POND

RETENTION POND

NEW BUILDING
F.F.E. 4838.00

LANDSCAPED
RETENTION POND A
RIM: 4834.62
BOTTOM: 4833.00
VOLUME: 1,512 CF.

IT MAY BE POSSIBLE TO PIPE THIS TO THE EXISTING STORM DRAIN

Does asphalt ramp up to access overhead door? Show flared ramp, or callout how overhead door is accessed.

1' RIBBON CURB

1' RIBBON CURB

1' RIBBON CURB

ROLL GUTTER

Area of ponding

LOW POINT FOR WATER TO NATURALLY EMERGENCY SPILL OVER INTO CURB

Low point in ribbon curb

LANDSCAPED
DETENTION POND B
RIM: 4836.50
BOTTOM: 4835.25
VOLUME: 1,404 CF.

THIS POND WILL EASILY OVERFLOW TO STREET DURING MAJOR STORM EVENTS. OTHER PONDS WILL FLOW TO NEIGHBORING PROPERTIES AND CAUSE HYDRAULIC TRESPASS. WHAT WILL BE DONE TO PREVENT THIS?

EX 8" SEWER

EX. 8" SEWER

N W E S

12 24 feet

SHEET NOTES

ALL SITE WORK WITHIN RIGHT OF WAY TO COMPLY WITH HYRUM CITY PUBLIC WORKS STANDARD DRAWINGS AND SPECIFICATIONS.

IF HYRUM DOES NOT HAVE A STANDARD OR TYPICAL DETAIL, CONTRACTOR TO FOLLOW ALL APWA STANDARDS AND SPECIFICATIONS. CONTRACTOR TO COORDINATE WITH ALL PUBLIC AND PRIVATE ENTITIES WHILE INSTALLING ALL UTILITIES. .

SHEET LEGEND

- EX.MAJOR CONTOUR
- EX. MINOR CONTOUR
- PROP. MAJOR CONTOUR
- PROP. MINOR CONTOUR
- PROP. EDGE OF ASPHALT
- EX. EDGE OF ROAD
- PROP. SHOULDER
- FL SWALE
- SS — EXISTING SEWER MAIN
- W — EXISTING WATER MAIN

EX: EXISTING GRADE
FFE: FINISHED FLOOR ELEVATION
FG: FINISHED GRADE
TBC: TOP BACK CURB
TOA: TOP OF ASPHALT
TOC: TOP OF CONCRETE

PLAN REVISIONS
A.

RIMROCK ENGINEERING & DEVELOPMENT

CAD TECH:	RJM	CALL BLUE STAKES PRIOR TO DIGGING
DESIGNER:	RJM	
Q&A:	JNS	

PROJECT NAME
CREGER MACHINE SHOP

SHEET NAME
GRADING PLAN

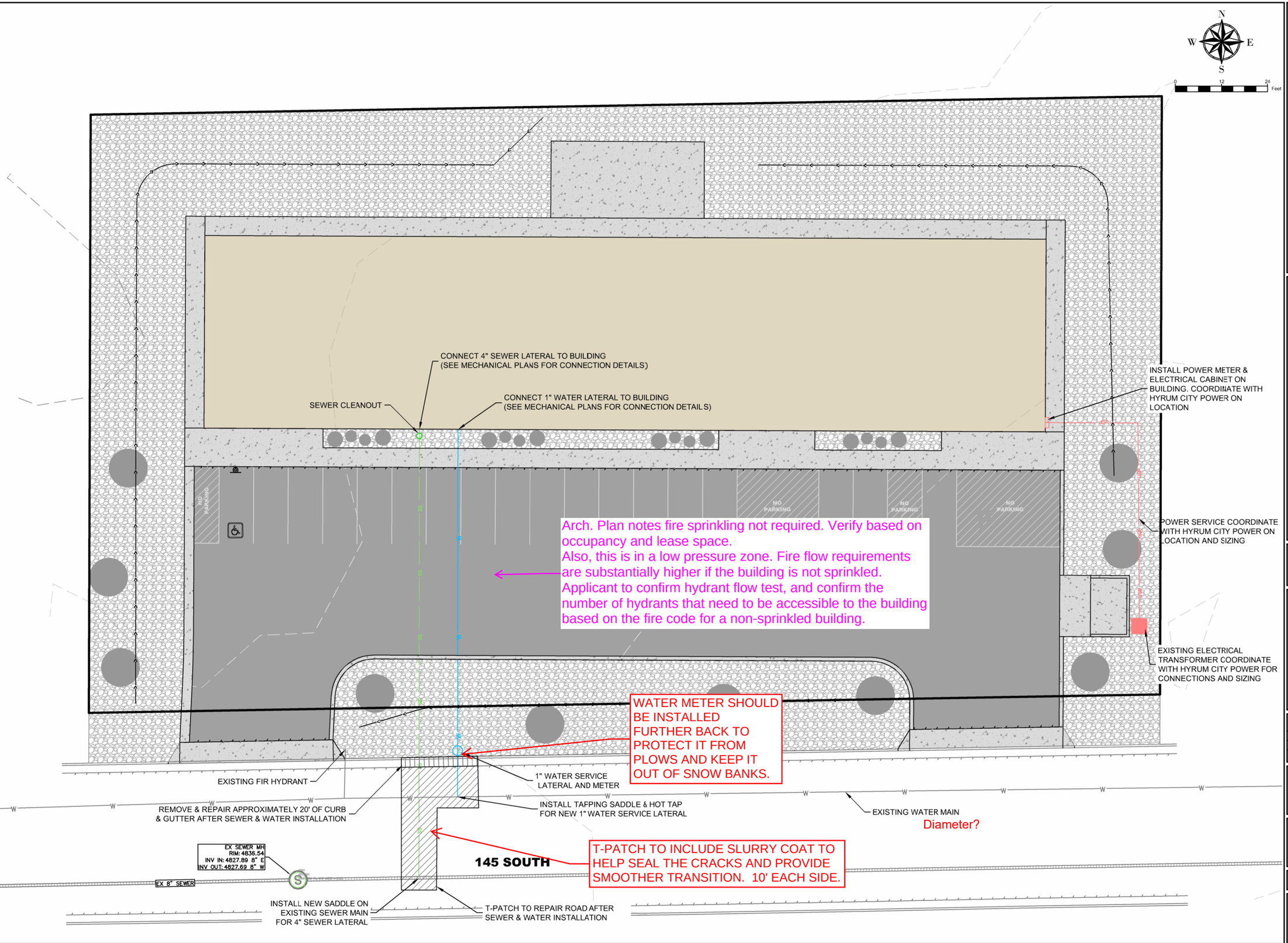
PLAN SUBMITTAL: PRELIM

REVIEW SET 5/12/25

SHEET NUMBER 1.2

E:\04-Civil 3D Projects\01-Rimrock Engineering\Cortenright Arch\Creger Machine Shop\08-Dwg\Design Base\Design Base3.dwg

5/12/2025



SHEET NOTES

ALL SITE WORK WITHIN RIGHT OF WAY TO COMPLY WITH HYRUM CITY PUBLIC WORKS STANDARD DRAWINGS AND SPECIFICATIONS.

IF HYRUM DOES NOT HAVE A STANDARD OR TYPICAL DETAIL, CONTRACTOR TO FOLLOW ALL APWA STANDARDS AND SPECIFICATIONS. CONTRACTOR TO COORDINATE WITH ALL PUBLIC AND PRIVATE ENTITIES WHILE INSTALLING ALL UTILITIES. .

SHEET LEGEND

- EX.MAJOR CONTOUR
- EX. MINOR CONTOUR
- PROP. MAJOR CONTOUR
- PROP. MINOR CONTOUR
- PROP. EDGE OF ASPHALT
- EX. EDGE OF ROAD
- PROP. SHOULDER
- FL SWALE
- SS — EXISTING SEWER MAIN
- W — EXISTING WATER MAIN
- W — 1" WATER SERVICE LAT.
- SS — 4" SEWER SERVICE LAT.
- UGP — UNDER GROUND POWER

PLAN REVISIONS
A.

RIMROCK ENGINEERING & DEVELOPMENT

CAD TECH:	RJM	**CALL BLUE STAKES PRIOR TO DIGGING**
DESIGNER:	RJM	
Q&A:	JNS	

PROJECT NAME
CREGER MACHINE SHOP

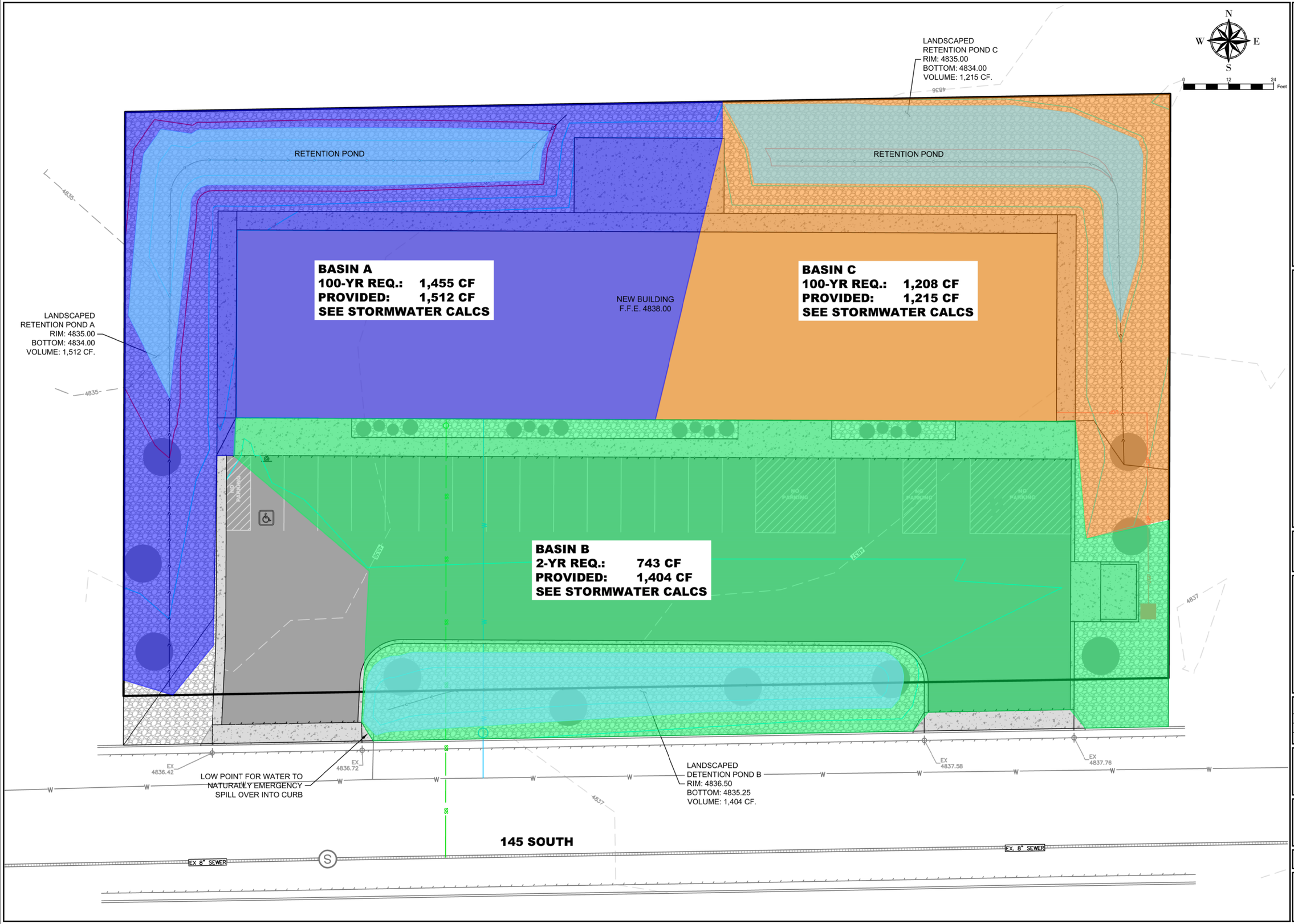
SHEET NAME
UTILITY PLAN

PLAN SUBMITTAL: PRELIM

REVIEW SET 5/12/25

SHEET NUMBER
1.3

E:\04-Civil 3D Projects\01-Rimrock Engineering\Cache\right Arch\Creger Machine Shop\Utility Plan\Design Base\Design Base3.dwg



SHEET NOTES

ALL SITE WORK WITHIN RIGHT OF WAY TO COMPLY WITH HYRUM CITY PUBLIC WORKS STANDARD DRAWINGS AND SPECIFICATIONS.

IF HYRUM DOES NOT HAVE A STANDARD OR TYPICAL DETAIL, CONTRACTOR TO FOLLOW ALL APWA STANDARDS AND SPECIFICATIONS. CONTRACTOR TO COORDINATE WITH ALL PUBLIC AND PRIVATE ENTITIES WHILE INSTALLING ALL UTILITIES. .

SHEET LEGEND

PLAN REVISIONS
A.

RIMROCK ENGINEERING & DEVELOPMENT

CAD TECH:	RJM
DESIGNER:	RJM
Q&A:	JNS

CALL BLUE STAKES PRIOR TO DIGGING

PROJECT NAME
CREGER MACHINE SHOP

SHEET NAME
STORM WATER PLAN

PLAN SUBMITTAL: PRELIM

REVIEW SET
5/9/25

SHEET NUMBER
1.4

5/9/2025

D:\TEMP_HARD_DRIVE_2025\Creger Machine Shop\Stormwater\Design Base3 — Standard\Design Base3.dwg

PROJECT NAME: **CREGER MACHINE SHOP**
PROJECT LOCATION: **HYRUM, UTAH**
DATE: **5/9/2025**
USER **JRC**
REVIEWED BY: **DSE**

RIMROCK ENGINEERING & DEVELOPMENT

NOAA ATLAS 14 PRECIPITATION DEPTH (INCHES)							
	RECURRANCE INTERVAL (YEARS)						
STORM DURATION	**1**	**2**	**5**	**10**	**25**	**50**	**100**
5-min:	0.116	0.147	0.202	0.252	0.332	0.403	0.488
10-min:	0.177	0.224	0.308	0.384	0.504	0.614	0.742
15-min:	0.219	0.277	0.382	0.476	0.625	0.761	0.92
30-min:	0.295	0.373	0.514	0.641	0.842	1.02	1.24
60-min:	0.364	0.462	0.636	0.793	1.04	1.27	1.53
2-hr:	0.478	0.599	0.785	0.956	1.23	1.48	1.76
3-hr:	0.567	0.706	0.895	1.07	1.34	1.59	1.88
6-hr:	0.786	0.97	1.2	1.4	1.7	1.96	2.24
12-hr:	1.04	1.29	1.57	1.82	2.19	2.48	2.8
24-hr:	1.39	1.72	2.09	2.4	2.84	3.19	3.55

NOAA ATLAS 14 PRECIPITATION INTENSITY (INCHES/HOUR)							
	RECURRANCE INTERVAL (YEARS)						
STORM DURATION	**1**	**2**	**5**	**10**	**25**	**50**	**100**
5-min:	1.39	1.76	2.42	3.02	3.98	4.84	5.86
10-min:	1.06	1.34	1.85	2.30	3.02	3.68	4.45
15-min:	0.88	1.11	1.53	1.90	2.50	3.04	3.68
30-min:	0.59	0.75	1.03	1.28	1.68	2.04	2.48
60-min:	0.36	0.46	0.64	0.79	1.04	1.27	1.53
2-hr:	0.24	0.30	0.39	0.48	0.62	0.74	0.88
3-hr:	0.19	0.24	0.30	0.36	0.45	0.53	0.63
6-hr:	0.13	0.16	0.20	0.23	0.28	0.33	0.37
12-hr:	0.09	0.11	0.13	0.15	0.18	0.21	0.23
24-hr:	0.06	0.07	0.09	0.10	0.12	0.13	0.15

PROJECT NAME:	**CREGER MACHINE SHOP**
PROJECT LOCATION:	**HYRUM, UTAH**
DATE:	**5/9/2025**
USER	**JRC**
REVIEWED BY:	**DSE**
BASIN A	

RIMROCK ENGINEERING & DEVELOPMENT

RUNOFF VOLUME CALCULATIONS BASED ON NOAA ATLAS 14 PRECIPITATION DATA & THE RATIONAL METHOD FOR FLOW RATES

RECURRANCE INTERVAL	100	YEARS	
DURATION	1440	MINUTES	24 HOURS
C-VALUE	0.93	UNITLESS	
AREA	0.33	ACRES	
TIME OF CONCENTRATION	10.00	MINUTES	

Infiltration rate an should be verified onsite

LOSSES					
CONTROLLED RELEASE			**INFILTRATION**		
ALLOWABLE DISCHARGE	0	CFS	PERC RATE	60	MINUTES/INCH
DURATION OF OUTFLOW	ENTIRE DURATION		SURFACE AREA	2850	
WATER QUALITY VOLUME	0	CU. FT.	FLOW RATE	0.066	CFS

TIME ELAPSED (MINUTES)	TIME ELAPSED (HOURS)	C	RAINFALL INTENSITY (INCHES/HOUR)	AREA (ACRES)	FLOW RATE (CFS)	VOLUME IN (CU. FT.)	VOLUME OUT CONTROLLED RELEASE (CU. FT.)	VOLUME OUT - INFILTRATION (CU. FT.)	NET VOLUME (CU. FT)
5	0.08	0.93	5.86	0.33	1.78	535	0	20	515
10	0.17	0.93	4.45	0.33	1.36	814	0	40	774
15	0.25	0.93	3.68	0.33	1.12	1009	0	59	950
30	0.50	0.93	2.48	0.33	0.76	1360	0	119	1241
60	1.00	0.93	1.53	0.33	0.47	1678	0	238	1440
120	2.00	0.93	0.88	0.33	0.27	1930	0	475	**1455**
180	3.00	0.93	0.63	0.33	0.19	2062	0	713	1349
360	6.00	0.93	0.37	0.33	0.11	2457	0	1425	1032
720	12.00	0.93	0.23	0.33	0.07	3071	0	2850	221
1440	24.00	0.93	0.15	0.33	0.05	3893	0	5700	0

PROJECT NAME:	**CREGER MACHINE SHOP**
PROJECT LOCATION:	**HYRUM, UTAH**
DATE:	**5/9/2025**
USER	**JRC**
REVIEWED BY:	**DSE**
BASIN A	

RIMROCK ENGINEERING & DEVELOPMENT

POST-DEVELOPMENT CONDITIONS

TIME OF CONCENTRATION - FAA METHOD		
STORM EVENT (RECURRANCE INTERVAL)	100	YEARS
TOP ELEVATION	4838	FT
BOTTOM ELEVATION	4833	FT
LENGTH OF LONGEST FLOW PATH	165	FT
AVERAGE SLOPE OF WATERCOURSE	0.03030303	FT/FT
C VALUE	0.93	UNITLESS
TIME OF CONCENTRATION	**10.00**	MINUTES

The FAA does not have a specific, universally used method for stormwater runoff calculations. It it simply provides guidance on using various methods, including the Rational Method, Soil Conservation Service (SCS) TR-55, and USGS regression equations in its Advisory Circular 150/5320-5C, Surface Drainage Design.

LAND COVER DESCRIPTION	AREA (SQ. FT.)	AREA (ACRES)	C-VALUE	ADJUSTMENT FACTOR	ADJUSTED C-VALUE
HEAVY COMMERCIAL	14250	0.33	0.75	1.25	0.93
	`	0.00		1.25	0.00
		0.00		1.25	0.00
		0.00		1.25	0.00
		0.00		1.25	0.00
		0.00		1.25	0.00
TOTAL	14250	0.33	0.75		**0.93**

PEAK RUNOFF (RATIONAL METHOD, Q=CiA)		
C	0.93	
i	4.45	INCHES/HOUR
A	0.33	ACRES
Q	**1.36**	CFS

SCS TR-55 Runoff curve numbers should be used for each cover type and the hydrologic soil group shown in the site plan to create a composite CN value

C VALUE FACTOR TABLE	
RECCURANCE INTERVAL	FACTOR
2	1
10	1
25	1.1
50	1.2
100	1.25

PROJECT NAME:	**CREGER MACHINE SHOP**
PROJECT LOCATION:	**HYRUM, UTAH**
DATE:	**5/9/2025**
USER	**JRC**
REVIEWED BY:	**DSE**
BASIN B	

RIMROCK ENGINEERING & DEVELOPMENT

RUNOFF VOLUME CALCULATIONS BASED ON NOAA ATLAS 14 PRECIPITATION DATA & THE RATIONAL METHOD FOR FLOW RATES

RECURRANCE INTERVAL	2	YEARS	
DURATION	1440	MINUTES	24 HOURS
C-VALUE	1.00	UNITLESS	
AREA	0.41	ACRES	
TIME OF CONCENTRATION	10.00	MINUTES	

LOSSES					
CONTROLLED RELEASE			**INFILTRATION**		
ALLOWABLE DISCHARGE	0	CFS	PERC RATE	60	MINUTES/INCH
DURATION OF OUTFLOW	AFTER WQV MET		SURFACE AREA	1400	
WATER QUALITY VOLUME	0	CU. FT.	FLOW RATE	0.032	CFS

TIME ELAPSED (MINUTES)	TIME ELAPSED (HOURS)	C	RAINFALL INTENSITY (INCHES/HOUR)	AREA (ACRES)	FLOW RATE (CFS)	VOLUME IN (CU. FT.)	VOLUME OUT CONTROLLED RELEASE (CU. FT.)	VOLUME OUT - INFILTRATION (CU. FT.)	NET VOLUME (CU. FT)
5	0.08	1.00	1.764	0.41	0.73	219	0	10	209
10	0.17	1.00	1.344	0.41	0.56	333	0	19	314
15	0.25	1.00	1.108	0.41	0.46	412	0	29	383
30	0.50	1.00	0.746	0.41	0.31	555	0	58	497
60	1.00	1.00	0.462	0.41	0.19	687	0	117	571
120	2.00	1.00	0.2995	0.41	0.12	891	0	233	658
180	3.00	1.00	0.235333333	0.41	0.10	1050	0	350	700
360	6.00	1.00	0.161666667	0.41	0.07	1443	0	700	**743**
720	12.00	1.00	0.1075	0.41	0.04	1919	0	1400	519
1440	24.00	1.00	0.071666667	0.41	0.03	2559	0	2800	0

PROJECT NAME:	**CREGER MACHINE SHOP**
PROJECT LOCATION:	**HYRUM, UTAH**
DATE:	**5/9/2025**
USER	**JRC**
REVIEWED BY:	**DSE**
BASIN C	

RIMROCK ENGINEERING & DEVELOPMENT

POST-DEVELOPMENT CONDITIONS

TIME OF CONCENTRATION - FAA METHOD		
STORM EVENT (RECURRANCE INTERVAL)	100	YEARS
TOP ELEVATION	4838	FT
BOTTOM ELEVATION	4835	FT
LENGTH OF LONGEST FLOW PATH	165	FT
AVERAGE SLOPE OF WATERCOURSE	0.018181818	FT/FT
C VALUE	1.00	UNITLESS
TIME OF CONCENTRATION	**10.00**	MINUTES

LAND COVER DESCRIPTION	**AREA (SQ. FT.)**	**AREA (ACRES)**	**C-VALUE**	**ADJUSTMENT FACTOR**	**ADJUSTED C-VALUE**
HEAVY COMMERCIAL	11666	0.27	0.90	1.25	1.00
	`	0.00		1.25	0.00
		0.00		1.25	0.00
		0.00		1.25	0.00
		0.00		1.25	0.00
		0.00		1.25	0.00
TOTAL	11666	0.27	0.90		**1.00**

PEAK RUNOFF (RATIONAL METHOD, Q=CiA)		
C	1.00	
i	4.45	INCHES/HOUR
A	0.27	ACRES
Q	**1.19**	CFS

C VALUE FACTOR TABLE	
RECCURANCE INTERVAL	FACTOR
2	1
10	1
25	1.1
50	1.2
100	1.25

PROJECT NAME:	**CREGER MACHINE SHOP**
PROJECT LOCATION:	**HYRUM, UTAH**
DATE:	**5/9/2025**
USER	**JRC**
REVIEWED BY:	**DSE**
BASIN C	

RIMROCK ENGINEERING & DEVELOPMENT

RUNOFF VOLUME CALCULATIONS BASED ON NOAA ATLAS 14 PRECIPITATION DATA & THE RATIONAL METHOD FOR FLOW RATES

RECURRANCE INTERVAL	100	YEARS	
DURATION	1440	MINUTES	24 HOURS
C-VALUE	1.00	UNITLESS	
AREA	0.27	ACRES	
TIME OF CONCENTRATION	10.00	MINUTES	

LOSSES					
CONTROLLED RELEASE			**INFILTRATION**		
ALLOWABLE DISCHARGE	0	CFS	PERC RATE	60	MINUTES/INCH
DURATION OF OUTFLOW	ENTIRE DURATION		SURFACE AREA	3205	
WATER QUALITY VOLUME	0	CU. FT.	FLOW RATE	0.074	CFS

TIME ELAPSED (MINUTES)	TIME ELAPSED (HOURS)	C	RAINFALL INTENSITY (INCHES/HOUR)	AREA (ACRES)	FLOW RATE (CFS)	VOLUME IN (CU. FT.)	VOLUME OUT CONTROLLED RELEASE (CU. FT.)	VOLUME OUT - INFILTRATION (CU. FT.)	NET VOLUME (CU. FT)
5	0.08	1.00	5.86	0.27	1.57	470	0	22	448
10	0.17	1.00	4.45	0.27	1.19	715	0	45	671
15	0.25	1.00	3.68	0.27	0.99	887	0	67	820
30	0.50	1.00	2.48	0.27	0.66	1196	0	134	1062
60	1.00	1.00	1.53	0.27	0.41	1475	0	267	**1208**
120	2.00	1.00	0.88	0.27	0.24	1697	0	534	1163
180	3.00	1.00	0.63	0.27	0.17	1813	0	801	1011
360	6.00	1.00	0.37	0.27	0.10	2160	0	1603	557
720	12.00	1.00	0.23	0.27	0.06	2700	0	3205	0
1440	24.00	1.00	0.15	0.27	0.04	3423	0	6410	0

NOAA Atlas 14, Volume 1, Version 5
Location name: Hyrum, Utah, USA*
Latitude: 41.6296°, Longitude: -111.8121°
Elevation: 4836 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**1.39** (1.22-1.58)	**1.76** (1.56-2.03)	**2.42** (2.12-2.78)	**3.02** (2.63-3.46)	**3.98** (3.40-4.57)	**4.84** (4.02-5.59)	**5.86** (4.74-6.83)	**7.03** (5.51-8.33)	**8.92** (6.66-10.8)	**10.6** (7.60-13.1)
10-min	**1.06** (0.930-1.21)	**1.34** (1.19-1.54)	**1.85** (1.62-2.11)	**2.30** (2.00-2.63)	**3.02** (2.59-3.48)	**3.68** (3.06-4.25)	**4.45** (3.61-5.20)	**5.35** (4.19-6.34)	**6.79** (5.06-8.23)	**8.08** (5.78-10.0)
15-min	**0.876** (0.772-0.996)	**1.11** (0.984-1.27)	**1.53** (1.34-1.75)	**1.90** (1.65-2.17)	**2.50** (2.14-2.88)	**3.04** (2.53-3.51)	**3.68** (2.98-4.30)	**4.42** (3.46-5.24)	**5.61** (4.18-6.80)	**6.68** (4.78-8.26)
30-min	**0.590** (0.518-0.670)	**0.746** (0.662-0.856)	**1.03** (0.902-1.18)	**1.28** (1.11-1.46)	**1.68** (1.44-1.94)	**2.05** (1.70-2.36)	**2.48** (2.01-2.89)	**2.98** (2.33-3.53)	**3.78** (2.82-4.58)	**4.50** (3.22-5.56)
60-min	**0.364** (0.321-0.415)	**0.462** (0.410-0.530)	**0.636** (0.558-0.728)	**0.793** (0.689-0.906)	**1.04** (0.890-1.20)	**1.27** (1.05-1.46)	**1.53** (1.24-1.79)	**1.84** (1.44-2.18)	**2.34** (1.74-2.83)	**2.78** (1.99-3.44)
2-hr	**0.239** (0.214-0.267)	**0.299** (0.268-0.335)	**0.392** (0.348-0.439)	**0.478** (0.420-0.536)	**0.614** (0.529-0.691)	**0.738** (0.623-0.836)	**0.881** (0.725-1.01)	**1.05** (0.835-1.22)	**1.31** (0.994-1.57)	**1.55** (1.13-1.90)
3-hr	**0.188** (0.171-0.210)	**0.235** (0.213-0.263)	**0.298** (0.270-0.332)	**0.356** (0.320-0.398)	**0.447** (0.395-0.502)	**0.529** (0.459-0.598)	**0.624** (0.528-0.714)	**0.733** (0.602-0.852)	**0.908** (0.713-1.08)	**1.06** (0.804-1.30)
6-hr	**0.131** (0.120-0.144)	**0.161** (0.148-0.178)	**0.200** (0.182-0.221)	**0.234** (0.211-0.260)	**0.284** (0.254-0.316)	**0.326** (0.287-0.365)	**0.373** (0.323-0.421)	**0.426** (0.361-0.486)	**0.517** (0.425-0.602)	**0.596** (0.477-0.707)
12-hr	**0.086** (0.079-0.095)	**0.106** (0.097-0.117)	**0.130** (0.119-0.144)	**0.151** (0.137-0.166)	**0.181** (0.162-0.201)	**0.206** (0.182-0.230)	**0.232** (0.202-0.261)	**0.260** (0.222-0.296)	**0.302** (0.252-0.350)	**0.337** (0.274-0.396)
24-hr	**0.057** (0.052-0.063)	**0.071** (0.064-0.078)	**0.087** (0.078-0.095)	**0.100** (0.090-0.110)	**0.118** (0.106-0.130)	**0.132** (0.119-0.146)	**0.148** (0.131-0.163)	**0.163** (0.145-0.180)	**0.185** (0.162-0.204)	**0.202** (0.176-0.224)
2-day	**0.034** (0.031-0.038)	**0.042** (0.038-0.047)	**0.051** (0.046-0.057)	**0.059** (0.053-0.065)	**0.069** (0.062-0.077)	**0.078** (0.070-0.087)	**0.087** (0.077-0.097)	**0.096** (0.085-0.107)	**0.109** (0.095-0.122)	**0.119** (0.103-0.134)
3-day	**0.025** (0.023-0.028)	**0.031** (0.028-0.035)	**0.038** (0.034-0.042)	**0.044** (0.039-0.049)	**0.052** (0.047-0.058)	**0.058** (0.052-0.065)	**0.065** (0.058-0.073)	**0.072** (0.064-0.080)	**0.082** (0.071-0.092)	**0.090** (0.077-0.100)
4-day	**0.021** (0.019-0.023)	**0.026** (0.023-0.029)	**0.032** (0.028-0.035)	**0.036** (0.033-0.041)	**0.043** (0.039-0.048)	**0.049** (0.043-0.054)	**0.054** (0.048-0.060)	**0.060** (0.053-0.067)	**0.068** (0.059-0.076)	**0.075** (0.065-0.084)
7-day	**0.014** (0.013-0.016)	**0.018** (0.016-0.020)	**0.022** (0.020-0.025)	**0.026** (0.023-0.029)	**0.030** (0.027-0.034)	**0.034** (0.030-0.038)	**0.038** (0.034-0.043)	**0.042** (0.037-0.048)	**0.048** (0.042-0.054)	**0.052** (0.045-0.059)
10-day	**0.011** (0.010-0.013)	**0.014** (0.013-0.016)	**0.018** (0.016-0.020)	**0.020** (0.018-0.023)	**0.024** (0.021-0.027)	**0.027** (0.024-0.030)	**0.030** (0.026-0.033)	**0.033** (0.029-0.036)	**0.037** (0.032-0.041)	**0.040** (0.035-0.045)
20-day	**0.007** (0.007-0.008)	**0.009** (0.008-0.010)	**0.011** (0.010-0.012)	**0.013** (0.012-0.014)	**0.015** (0.014-0.016)	**0.016** (0.015-0.018)	**0.018** (0.016-0.020)	**0.019** (0.018-0.021)	**0.021** (0.019-0.024)	**0.023** (0.020-0.025)
30-day	**0.006** (0.005-0.006)	**0.007** (0.007-0.008)	**0.009** (0.008-0.010)	**0.010** (0.009-0.011)	**0.012** (0.011-0.013)	**0.013** (0.012-0.014)	**0.014** (0.013-0.016)	**0.016** (0.014-0.017)	**0.017** (0.016-0.019)	**0.019** (0.017-0.021)
45-day	**0.005** (0.004-0.005)	**0.006** (0.006-0.007)	**0.007** (0.007-0.008)	**0.008** (0.008-0.009)	**0.010** (0.009-0.010)	**0.010** (0.010-0.011)	**0.011** (0.010-0.012)	**0.012** (0.011-0.013)	**0.013** (0.012-0.015)	**0.014** (0.013-0.016)
60-day	**0.004** (0.004-0.005)	**0.005** (0.005-0.006)	**0.006** (0.006-0.007)	**0.007** (0.007-0.008)	**0.008** (0.007-0.009)	**0.009** (0.008-0.010)	**0.010** (0.009-0.010)	**0.010** (0.009-0.011)	**0.011** (0.010-0.012)	**0.012** (0.011-0.013)

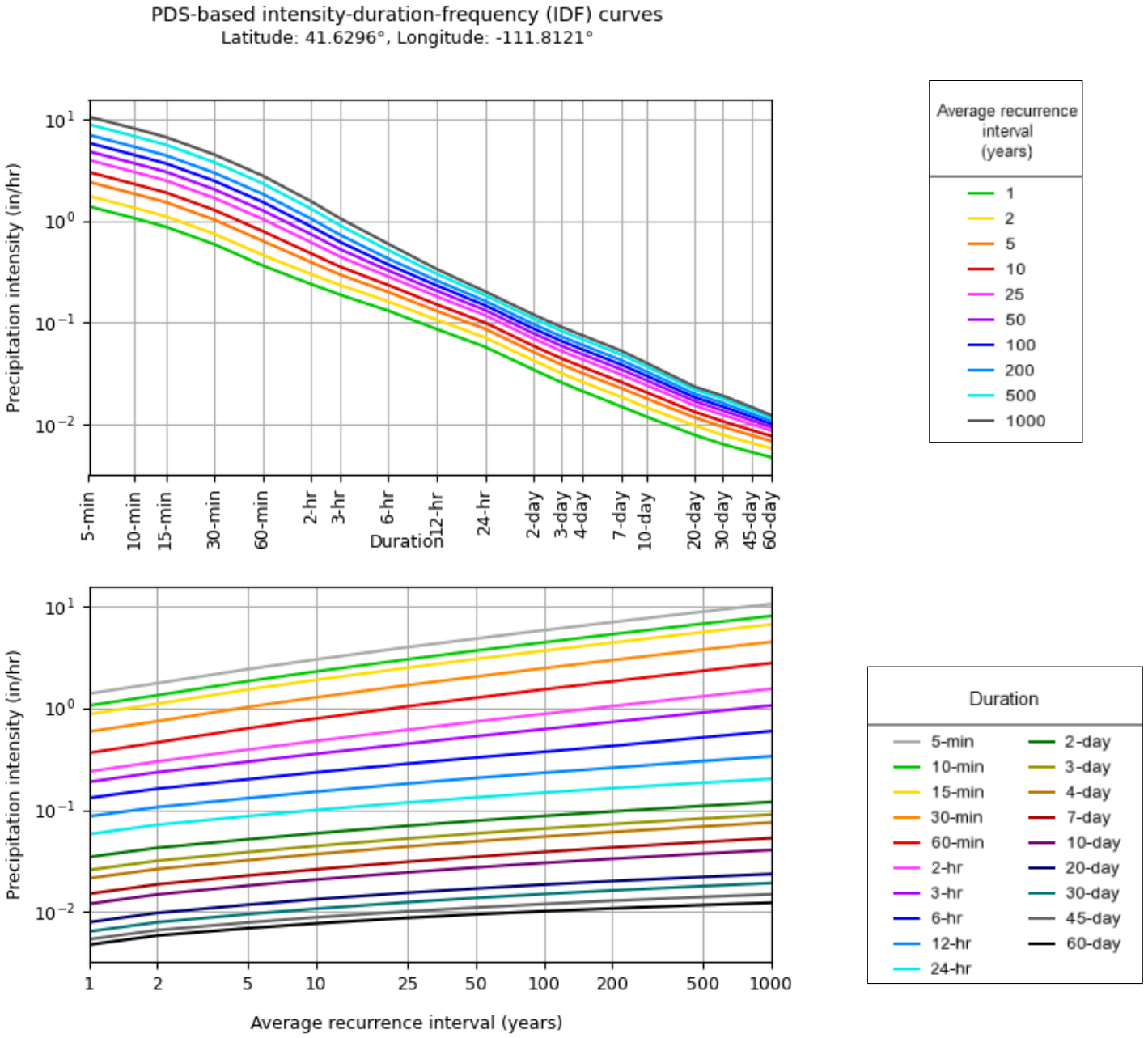
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical



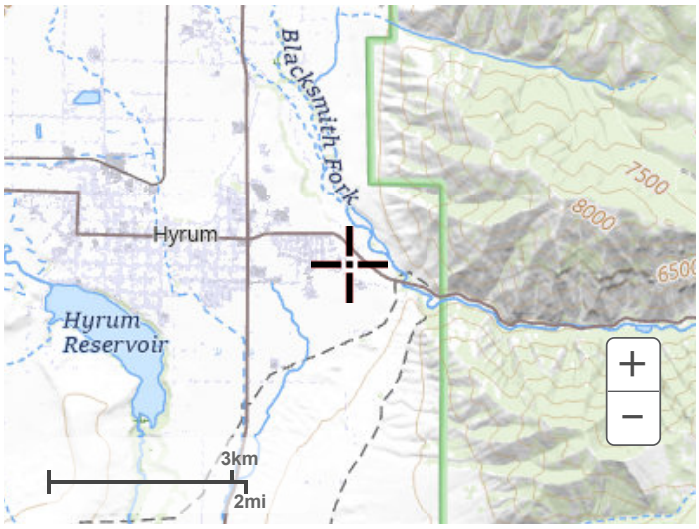
NOAA Atlas 14, Volume 1, Version 5

Created (GMT): Fri May 9 23:35:16 2025

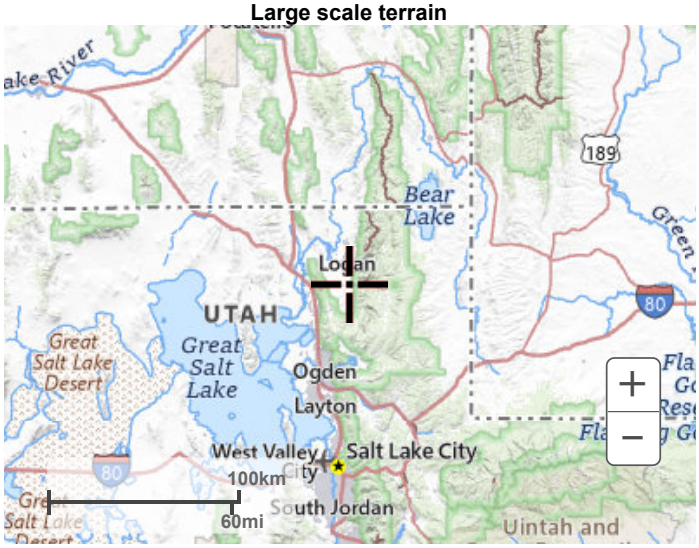
Back to Top

Maps & aerials

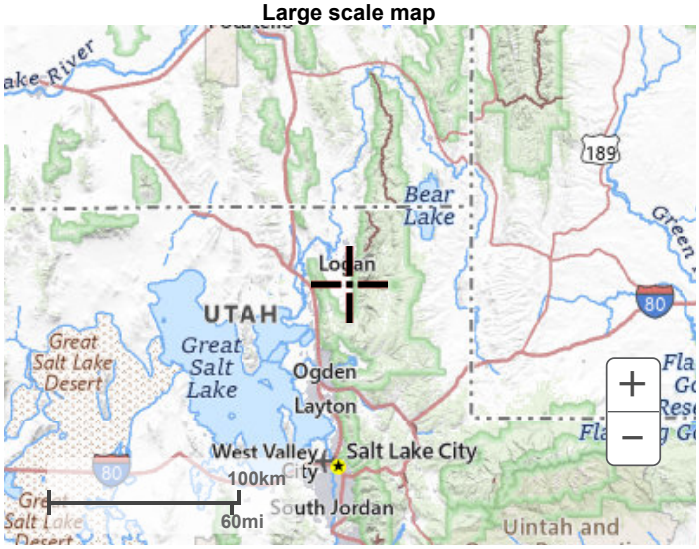
Small scale terrain



Large scale terrain



Large scale map



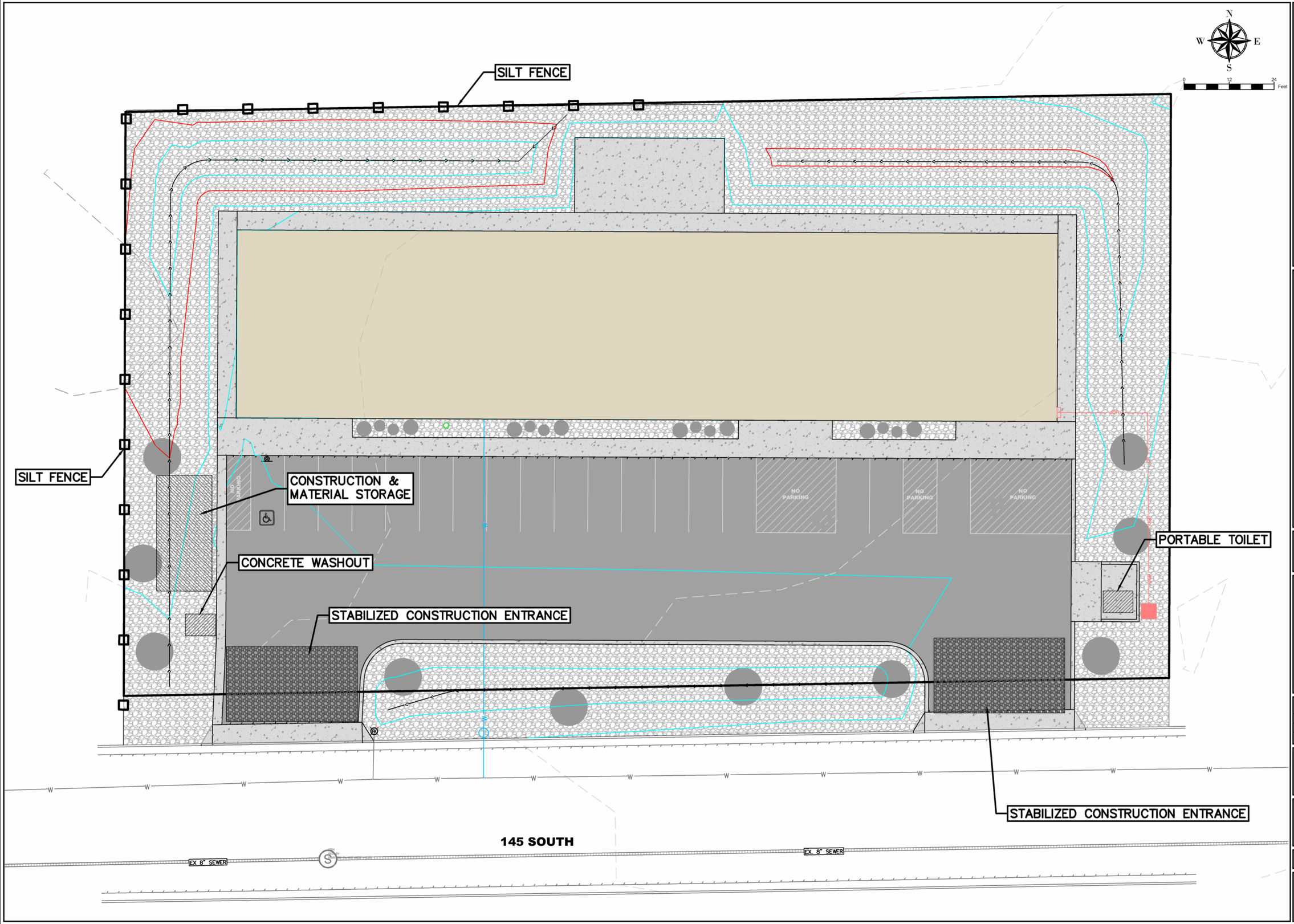
Large scale aerial

Back to Top

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

5/12/2025



SHEET NOTES

ALL SITE WORK WITHIN RIGHT OF WAY TO COMPLY WITH HYRUM CITY PUBLIC WORKS STANDARD DRAWINGS AND SPECIFICATIONS.

IF HYRUM DOES NOT HAVE A STANDARD OR TYPICAL DETAIL, CONTRACTOR TO FOLLOW ALL APWA STANDARDS AND SPECIFICATIONS. CONTRACTOR TO COORDINATE WITH ALL PUBLIC AND PRIVATE ENTITIES WHILE INSTALLING ALL UTILITIES. .

SHEET LEGEND

PLAN REVISIONS
A.

RIMROCK ENGINEERING & DEVELOPMENT

CAD TECH:	RJM	**CALL BLUE STAKES PRIOR TO DIGGING**
DESIGNER:	RJM	
Q&A:	JNS	

PROJECT NAME
CREGER MACHINE SHOP

SHEET NAME
EROSION CONTROL PLAN

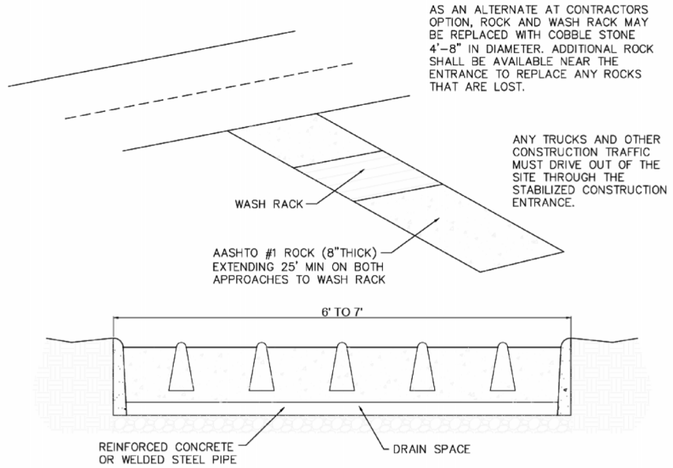
PLAN SUBMITTAL: PRELIM

REVIEW SET 5/12/25

SHEET NUMBER 1.1

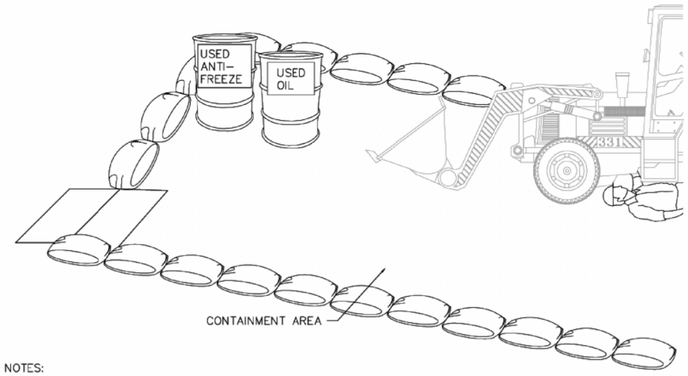
E:\04-Civil 3D Projects\01-Rimrock Engineering\Cartwright Arch\Creger Machine Shop\Utility Plan\Design Base\Design Base3.dwg

5/12/2025



MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCK PILE OF ROCK MATERIAL SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. DRAIN SPACE UNDER WASH RACK SHALL BE KEPT OPEN AT ALL TIME. DAMAGE TO THE WASH RACK SHALL BE REPAIRED PRIOR TO FURTHER USE OF THE RACK. AT THE END OF EACH CONSTRUCTION DAY, ANY SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE.

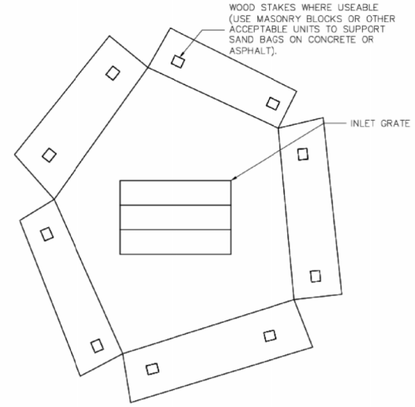
A STABILIZED CONSTRUCTION ENTRANCE

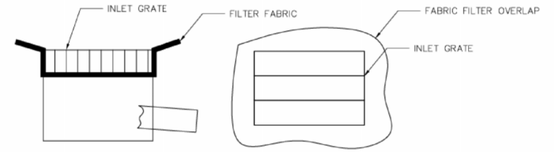


NOTES:

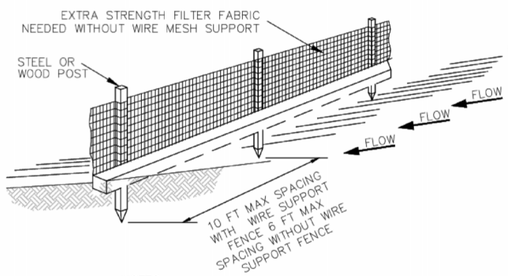
1. LEAKING VEHICLES AND EQUIPMENT SHALL NOT BE ALLOWED ON–SITE. EQUIPMENT AND VEHICLES SHALL BE INSPECTED FREQUENTLY FOR LEAKS AND SHALL BE REPAIRED IMMEDIATELY. CLEAN UP SPILLS AND LEAKS PROMPTLY WITH ABSORBENT MATERIALS; DO NOT FLUSH WITH WATER.
2. VEHICLES AND EQUIPMENT SHALL BE MAINTAINED, AND REPAIRED ON–SITE ONLY IN DESIGNATED AREAS. PREVENT RUN–ON AND RUN–OFF FROM DESIGNATED AREAS.
3. CONTAINMENT DEVISED SHALL BE PROVIDED AND AREAS SHALL BE COVERED IF NECESSARY.
4. DESIGNATE ON–SITE VEHICLE AND EQUIPMENT MAINTENANCE AREAS, AWAY FROM STORM DRAIN INLETS AND WATERCOURSES.
5. ALWAYS USE SECONDARY CONTAINMENT, SUCH AS A DRAIN PAN OR DROP CLOTH TO CATCH SPILLS AND LEAKS WHEN REMOVING OR CHANGING FLUIDS. LEGALLY DISPOSE OF USED OILS, FLUIDS AND LUBRICANTS.
6. PROVIDE SPILL CONTAINMENT DIKES OR SECONDARY CONTAINMENT AROUND STORED OIL, FUEL, AND CHEMICAL DRUMS.
7. MAINTAIN AN ADEQUATE SUPPLY OF ABSORBENT SPILL CLEANUP MATERIALS IN DESIGNATED AREAS.

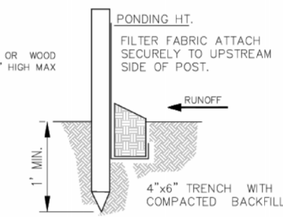
B CONSTRUCTION & MATERIAL STORAGE



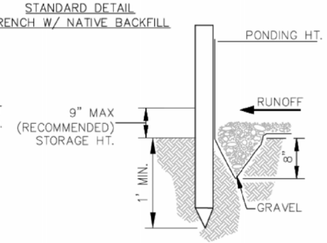


C GRAVEL BAG AND FILTER FABRIC INLET PROTECTION





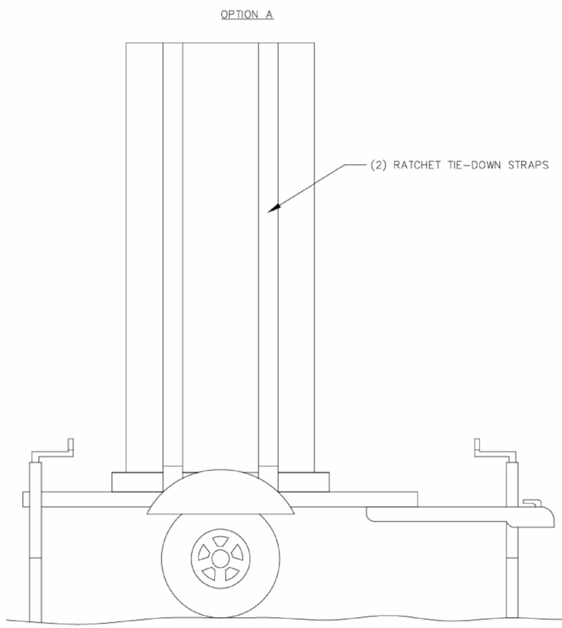
STANDARD DETAIL
TRENCH W/ NATIVE BACKFILL

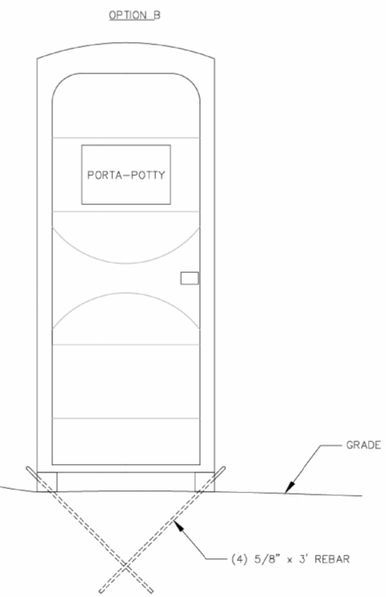


ALTERNATE DETAIL
TRENCH W/ GRAVEL

NOTES:
1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT; SEE PLAN VIEW.
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF–SITE AND CAN BE PERMANENTLY STABILIZED.
3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.

D LODA/SILT FENCE





E PORTABLE TOILET

SHEET NOTES

ALL SITE WORK WITHIN RIGHT OF WAY TO COMPLY WITH HYRUM CITY PUBLIC WORKS STANDARD DRAWINGS AND SPECIFICATIONS.

IF HYRUM DOES NOT HAVE A STANDARD OR TYPICAL DETAIL, CONTRACTOR TO FOLLOW ALL APWA STANDARDS AND SPECIFICATIONS. CONTRACTOR TO COORDINATE WITH ALL PUBLIC AND PRIVATE ENTITIES WHILE INSTALLING ALL UTILITIES. .

SHEET LEGEND

PLAN REVISIONS
A.

RIMROCK ENGINEERING & DEVELOPMENT

CAD TECH:	RJM
DESIGNER:	RJM
Q&A:	JNS

CALL BLUE STAKES PRIOR TO DIGGING

PROJECT NAME
CREGER MACHINE SHOP

SHEET NAME
DETAILS

PLAN SUBMITTAL: **PRELIM**

REVIEW SET 5/12/25

SHEET NUMBER
4.0

E:\04–Civil 3D Projects\01–Rimrock_Engineering\Cartwright Arch\Creger Machine Shop\08–Dwg\Design Base\Design Base3.dwg

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Cache Valley Area, Parts of Cache and Box Elder Counties, Utah

May 9, 2025

Contents

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.


111° 48' 46" W
111° 48' 40" W
41° 37' 48" N
41° 37' 45" N
432280
432290
432300
432310
432320
432330
432340
432350
432360
432370
432380
432390
432400
432410
4609020
4609010
4609000
4608990
4608980
4608970
4608960
4608950
4608940
RhA
Soil Map may not be valid at this scale.
Map Scale: 1:639 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 5 10 20 30
Feet
0 30 60 120 180
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
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: Cache Valley Area, Parts of Cache and Box Elder Counties, Utah
Survey Area Data: Version 17, Aug 26, 2024

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

Date(s) aerial images were photographed: Jun 22, 2022—Jul 11, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
RhA	RICKS GRAVELLY LOAM, 0 TO 3 PERCENT SLOPES	1.7	100.0%
Totals for Area of Interest		**1.7**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Cache Valley Area, Parts of Cache and Box Elder Counties, Utah

RhA—RICKS GRAVELLY LOAM, 0 TO 3 PERCENT SLOPES

Map Unit Setting

National map unit symbol: j6dn
Elevation: 4,500 to 5,700 feet
Mean annual precipitation: 15 to 17 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 130 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Ricks and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ricks

Setting

Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and deltaic sediments derived from limestone, sandstone and quartzite

Typical profile

Ap - 0 to 4 inches: gravelly loam
A1 - 4 to 9 inches: gravelly loam
B2 - 9 to 14 inches: gravelly loam
B3ca - 14 to 18 inches: gravelly sandy loam
IIC1ca - 18 to 24 inches: very gravelly sand
IIC2ca - 24 to 60 inches: very gravelly sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: R028AY310UT - Upland Loam (Bonneville Big Sagebrush) North
Other vegetative classification: Upland Loam (Mountain Big Sagebrush) (028AY310UT)

Hydric soil rating: No

Minor Components

Timpanogos

Percent of map unit: 5 percent