

August 16, 2024

Submitted via email

Nikie Gagnon  
Colorado Division of Reclamation, Mining and Safety  
1313 Sherman Street, Room 215  
Denver, Colorado 80203

**Re: Climax Molybdenum Company, Henderson Mill, Reclamation Permit M-1977-342, Proposed Technical Revision No. 36, Ute Park Extraction Wellfield – Phase IV**

Dear Nikie:

Climax Molybdenum Company – Henderson Operations is submitting this request for a Technical Revision (TR-36) to the Henderson Reclamation Permit for the Phase IV continued construction of the upgrade to the Ute Park Extraction Wellfield, downgradient of the Henderson Mill Tailing Storage Facility (TSF) 1-Dam. Phase IV is the continued effort to replace the original wellfield permitted under TR-10. The continued expansion of the new wellfield is related to ongoing hydrogeologic investigations and improved modeling which provide a more complete understanding of preferential flow pathways within the shallow aquifer. These efforts have identified areas where Henderson can further mitigate seepage-impacted groundwater that could migrate further downgradient. A site map of the area below 1-Dam and the existing extraction and monitoring well network are included in Attachment 1, Figures 1 and 2.

As part of Phase IV, Henderson plans to install two (2) additional extraction wells and associated infrastructure (electrical, piping, and instrumentation). MLEX-6 will be drilled and installed inside of Ute Park, east of MLEX-3, MLEX-4, and MLEX-5, where geophysical and aquifer testing data indicate a permeable zone possibly associated with the paleochannel of Ute Creek. MLEX-7 will be drilled and installed inside of the gravel pit located east of County Road 3. Aquifer testing and water level transducer data suggest the current extraction wellfield capture zone does not extend into the gravel pit area. By installing and operating MLEX-7, Henderson will proactively expand the southeastern extent of the capture zone beyond Ute Park, resulting in a more effective system east of 1-Dam.

The installation of the previous extraction well phases allowed for further characterization of the aquifer by providing geologic, saturated thickness, hydraulic conductivity, and pumping capacity. Coupled with the recent geophysical study, Henderson has been able to more accurately identify strategic locations to address gaps in the existing wellfield network. This preliminary work was utilized to optimize the site, design, location, well depth, casing diameter, and other design parameters.

The Phase IV wells will be drilled through the entire thickness of the aquifer system, which is estimated to be 90 and 150 feet, at MLEX-6 and MLEX-7, respectively. The extraction wells are designed to optimize flow from the aquifer and includes 8-inch stainless steel blank casing and wire-wrap screen. Final pump designs will be developed after wells are installed and tested; however, it is anticipated that each well will be equipped with a 4-inch downhole pump that will convey water through a 2-inch drop pipe and pitless adapter to a vault located near the wellheads. From MLEX-6, water will be conveyed from the vault via 4-inch high-density polyethylene (HDPE) pipe before connecting to the 6-inch HDPE header pipeline that leads to the seepage collection system. For MLEX-7, water will be conveyed from the vault via a 6-inch HDPE line and discharge into the seep collection channel near Ute Park Pumpstation. Instrumentation for the system will be similar to Phase III which includes a down-well transducer and float switches to monitor

and maintain water level setpoints, a flow meter located in the vault, a data logger, and a radio transmitter. These will be powered and controlled by control panels located near the wellhead. The pumps will have a variable frequency drive allowing them to operate more efficiently, preventing cycling, and extending the life of the pump. Draft well and infrastructure designs are included in Attachment 2.

A check in the amount of (x) is included with this submittal to cover fees for this Technical Revision. If you have any questions or need additional information, please do not hesitate to contact me at [bbates1@fmi.com](mailto:bbates1@fmi.com), or (970) 433-0894, or Miguel Hamarat at [mhamarat@fmi.com](mailto:mhamarat@fmi.com), or (720) 942-3255.

Sincerely,

A handwritten signature in blue ink, appearing to read "Ben Bates".

Ben Bates  
Senior Environmental Engineer  
Climax Molybdenum Company  
Henderson Operations

Attachments:

1. Figures
2. Well Design and Pipeline Alignment
3. Pitless Unit Detail

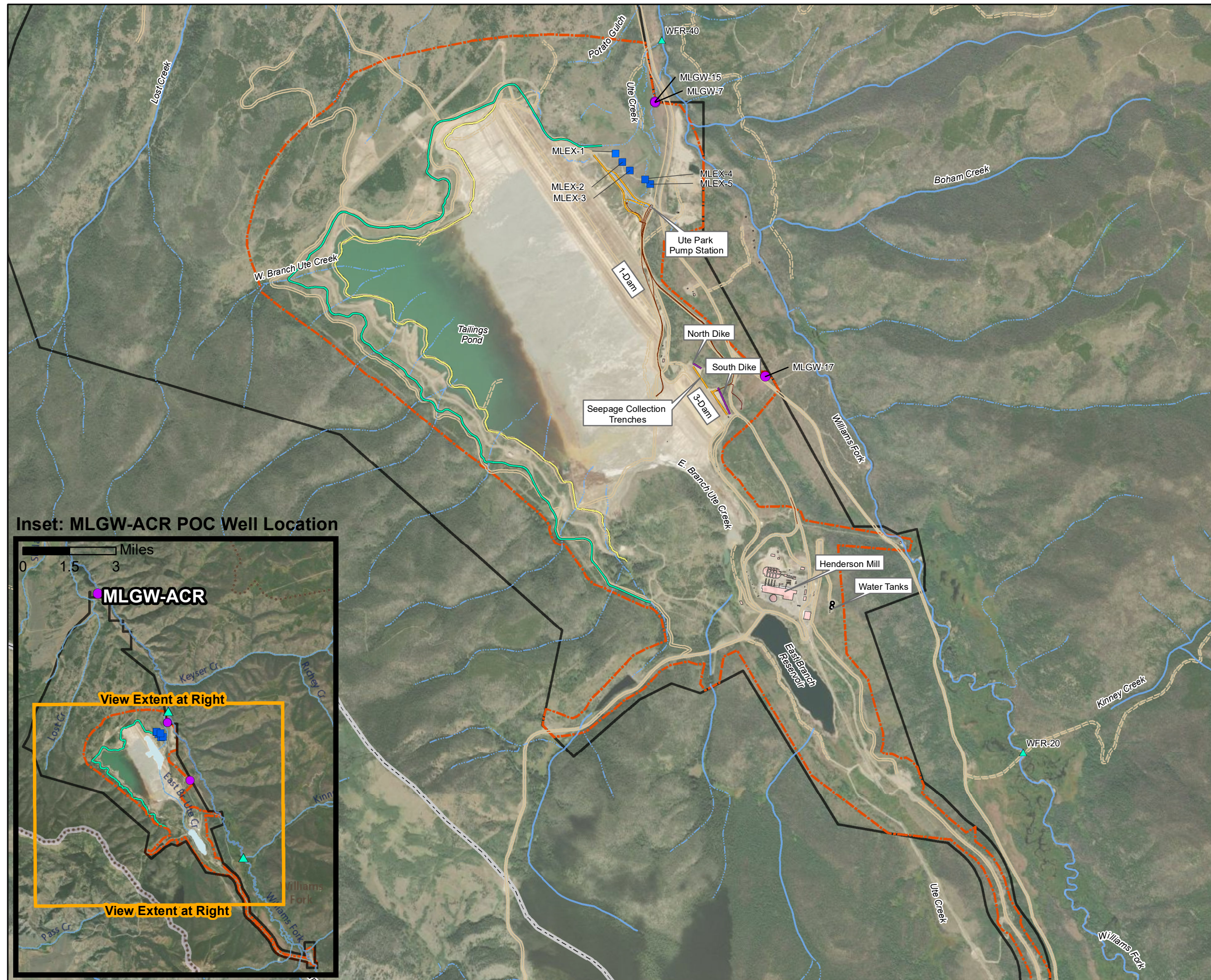
Cc (via email):

Miguel Hamarat, Climax

# **ATTACHMENT 1**

## **FIGURES**





## Legend

- POC Monitor Well
- Extraction Well
- ▲ Surface Water Monitoring Loc.
- Ultimate Canal
- Canal
- Dike
- Ditch
- Intermittent Surface Water
- Perennial Surface Water
- Pipeline
- Road  
*dashed where unimproved*
- Property Boundary
- Affected Lands (2010)
- County Line

## Henderson Mill, Grand County, CO



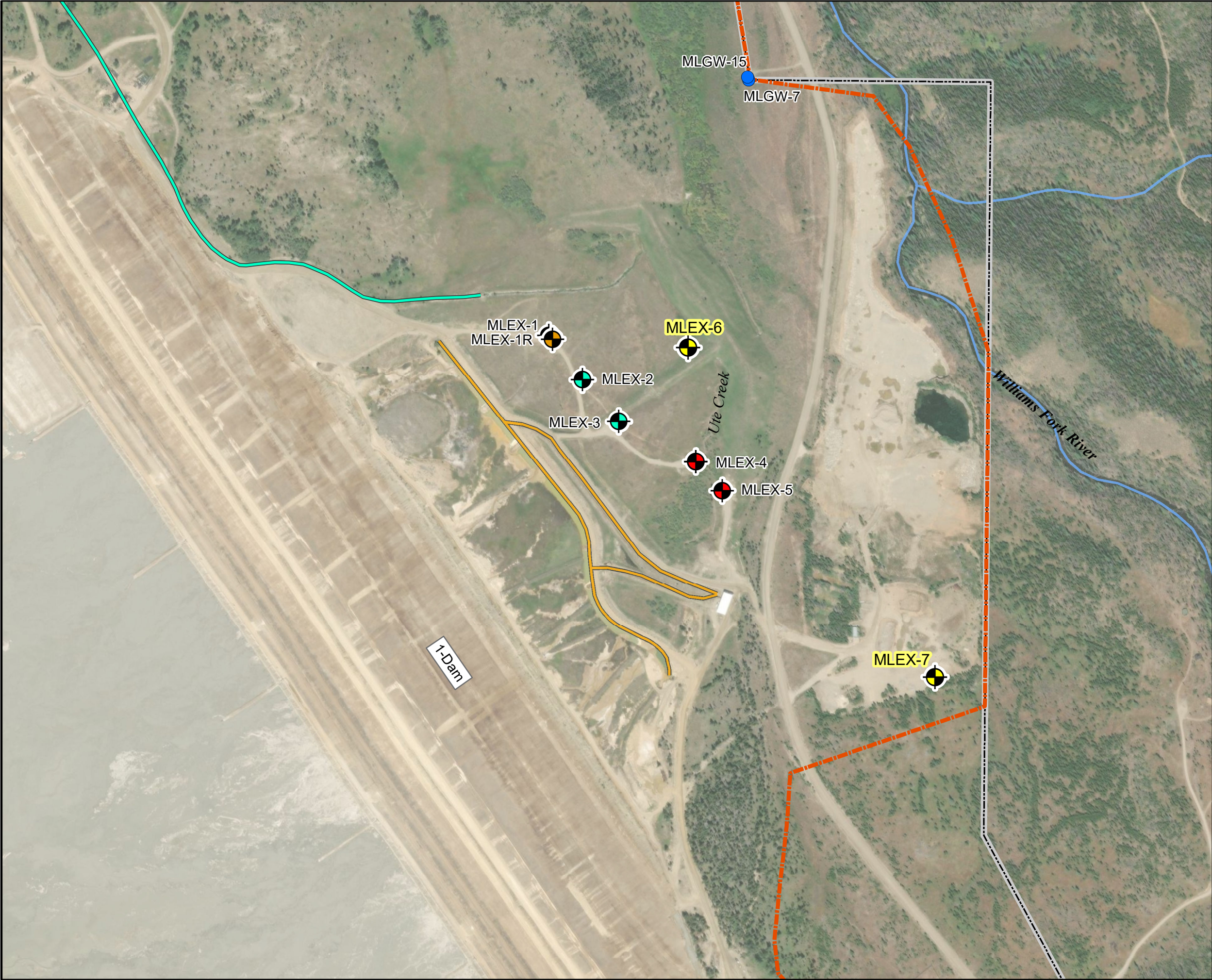
SCALE: 1 inch = 2,500 feet

0 1,250 2,500 5,000 Feet



**Figure 1**  
**Regional Map**  
**Henderson Mill, CO**





- Legend**
- 2024 Extraction Well (proposed)
  - 2023 Replacement Extraction Well
  - Phase III Extraction Well
  - Phase II Extraction Well
  - Phase I Extraction Well
  - POC Monitor Well
  - Ultimate Canal
  - Canal
  - Perennial Surface Water
  - Property Boundary
  - Affected Lands (2010)

**SCALE:** 1 inch: 500 feet

0 500 1,000 Feet

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community  
Imagery from USDA NAIP Natural Color Imagery for Colorado acquired 2013.

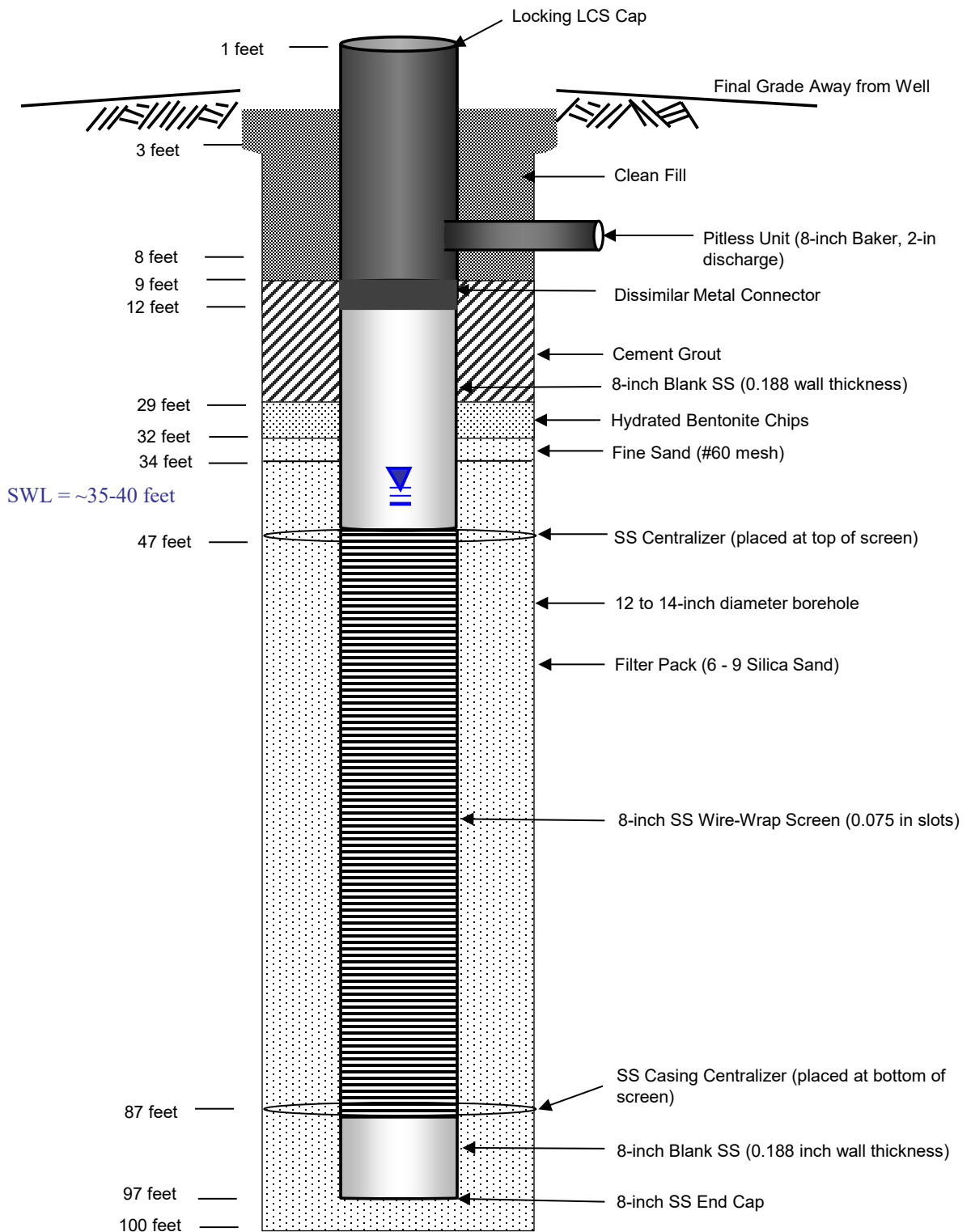


**Figure 2**  
Site Map  
1-Dam  
Henderson Mill, CO



**ATTACHMENT 2**  
**WELL DESIGN AND PIPELINE ALIGNMENT**

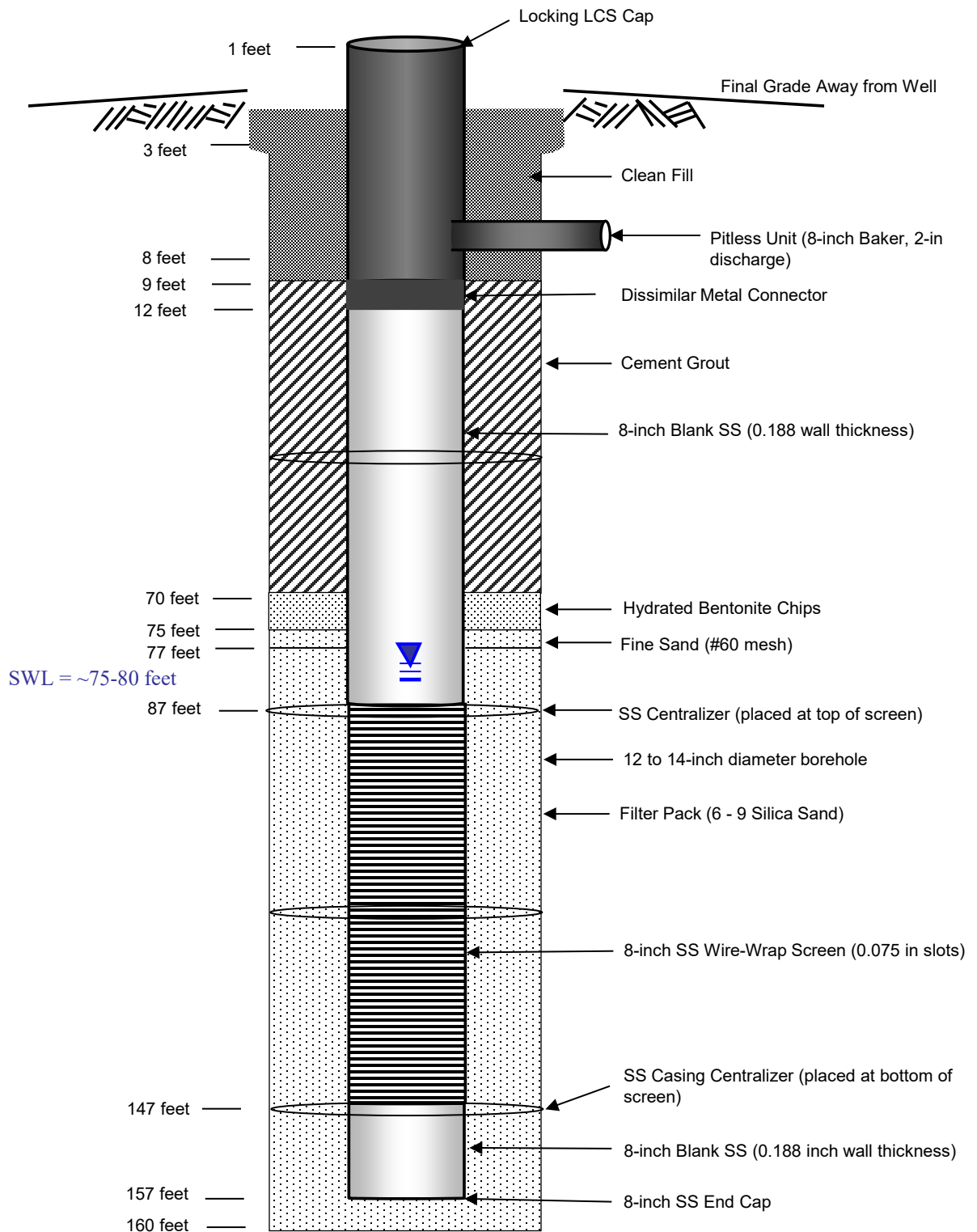




**Notes:** SS = Stainless Steel Type 304L  
LCS = low carbon steel

1. Final design to be developed following well borehole drilling. Actual depths for casing, screen and annular materials may vary from preliminary design.

**MLEX-6**  
**Extraction Well**  
**Preliminary Design**



**Notes:** SS = Stainless Steel Type 304L  
LCS = low carbon steel

1. Final design to be developed following well borehole drilling. Actual depths for casing, screen and annular materials may vary from preliminary design.

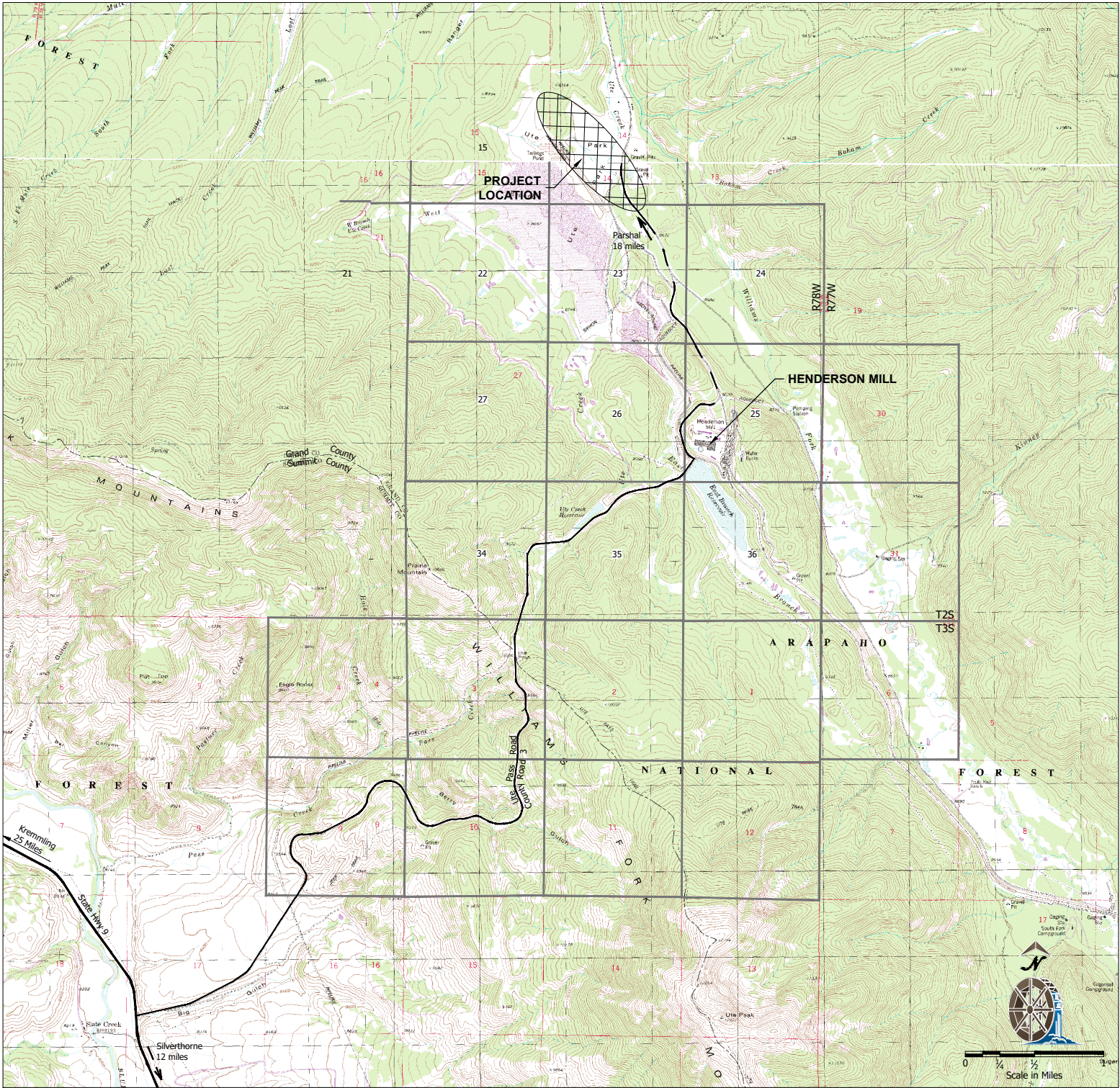
**MLEX-7**  
**Extraction Well**  
**Preliminary Design**



HENDERSON 1 DAM EXTRACTION WELL PROJECT  
SEEPWATER WELL COLLECTION PIPELINE  
PHASE IV (WELLS MLEX-6 AND MLEX-7)

FOR  
CLIMAX MOLYBDENUM COMPANY  
HENDERSON MILL

BY  
W. W. WHEELER AND ASSOCIATES, INC.



PROJECT LOCATION

DRAWING INDEX	
DRAWING NO.	DRAWING TITLE
Construction Documents: General	
G-1	COVER SHEET - LOCATION MAP AND DRAWING INDEX
Construction Documents: Civil	
C-1	WELL FIELD PIPING SYSTEM - PHASE IV
C-2	EXTRACTION WELL VAULT - DETAILS
C-3	PIPELINE TRENCH - SECTION AND MISCELLANEOUS DETAILS
C-4	COUNTY ROAD CROSSING - PLAN, PROFILE, AND DETAILS
C-5	MATERIALS LIST

R:\13001\13331\1333.01\1333.01.07 (Extraction Wells)\DRAWINGS\Phase IV\IR (SheetFiles)\13330117-001 8-15-24 04:32pm scotta XREFS: Climax22x34 039106G1; 039106G2; 039106H1; 039106H2; Climax\_4C;

REVISIONS	NO.	DATE	MADE BY	CKD. BY	REMARKS
	1	08/24	SAA	SMM	ISSUED FOR REVIEW

"This drawing together with any and all additions, corrections, changes and alterations thereof is the property of Climax Molybdenum Company and is furnished on the express condition that it shall not be reproduced, copied, lent, or disposed of directly or indirectly, nor used for any other purpose than for which it is specifically furnished without the prior written consent of said Climax Molybdenum Company."

REFERENCE DWGS	DRAWING NO.	REFERENCE



A Freeport-McMoRan Company

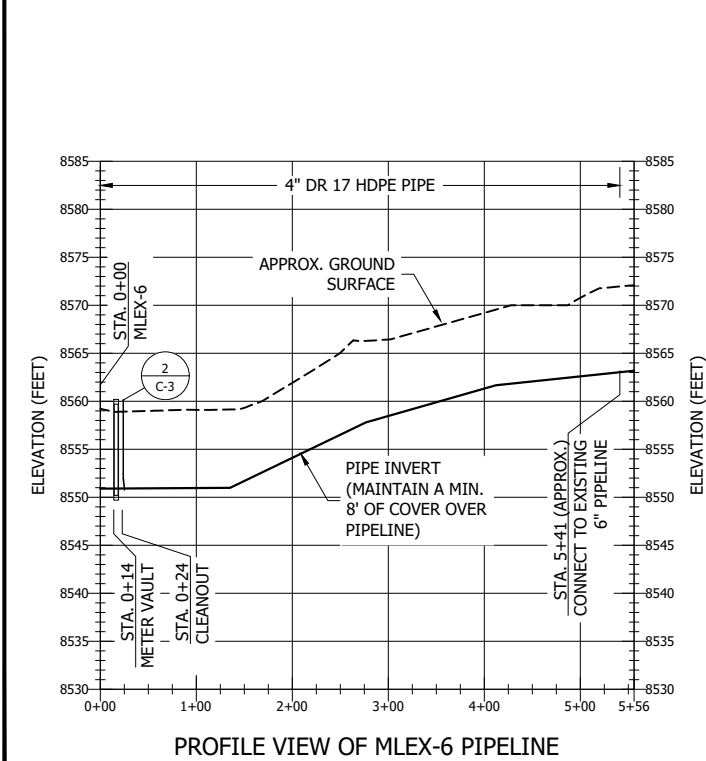


3700 S. INCA STREET  
ENGLEWOOD, CO 80110-3405  
303-761-4130

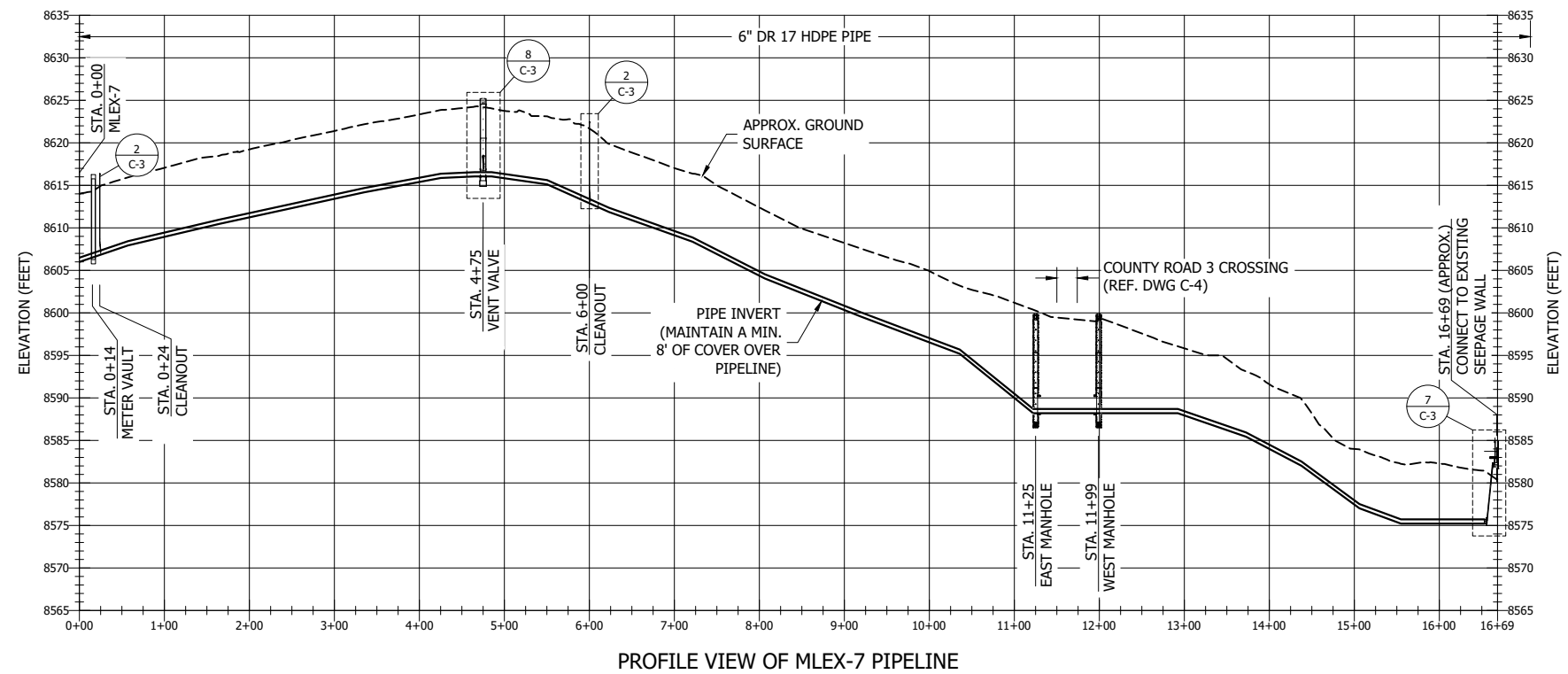
SEEPWATER WELL COLLECTION PIPELINE		Climax Molybdenum Henderson Mill Parshall, CO		
PHASE IV MLEX WELLS		DRAWN BY SAA	04/24	PROJECT NUMBER 1333.01.17
COVER SHEET		DESIGNED BY SMM	04/24	DRAWING NO.
LOCATION MAP AND DRAWING INDEX		CHECKED BY		G-1



R:\13001\13331\1333.01\1333.01.07 (Extraction Wells)\DRAWINGS\Phase IV\PR (SheetFiles)\3330117-002 8-15-24 04:32pm scotta XREFS: 2015 Site Map; Climax22a-b2a-4939-80c3-d4ec11cc0f4; Mosiac\VG3; c39106g1\_r; c39106h1\_r; Climax\_4C;



PROFILE VIEW OF MLEX-6 PIPELINE



PROFILE VIEW OF MLEX-7 PIPELINE

NO.	DATE	MADE BY	CKD. BY	REMARKS
1	08/24	SAA	SMM	ISSUED FOR REVIEW

"This drawing together with any and all additions, corrections, changes and alterations thereof is the property of Climax Molybdenum Company and is furnished on the express condition that it shall not be reproduced, copied, lent, or disposed of directly or indirectly, nor used for any other purpose than for which it is specifically furnished without the prior written consent of said Climax Molybdenum Company."

DRAWING NO.	REFERENCE



A Freeport-McMoRan Company

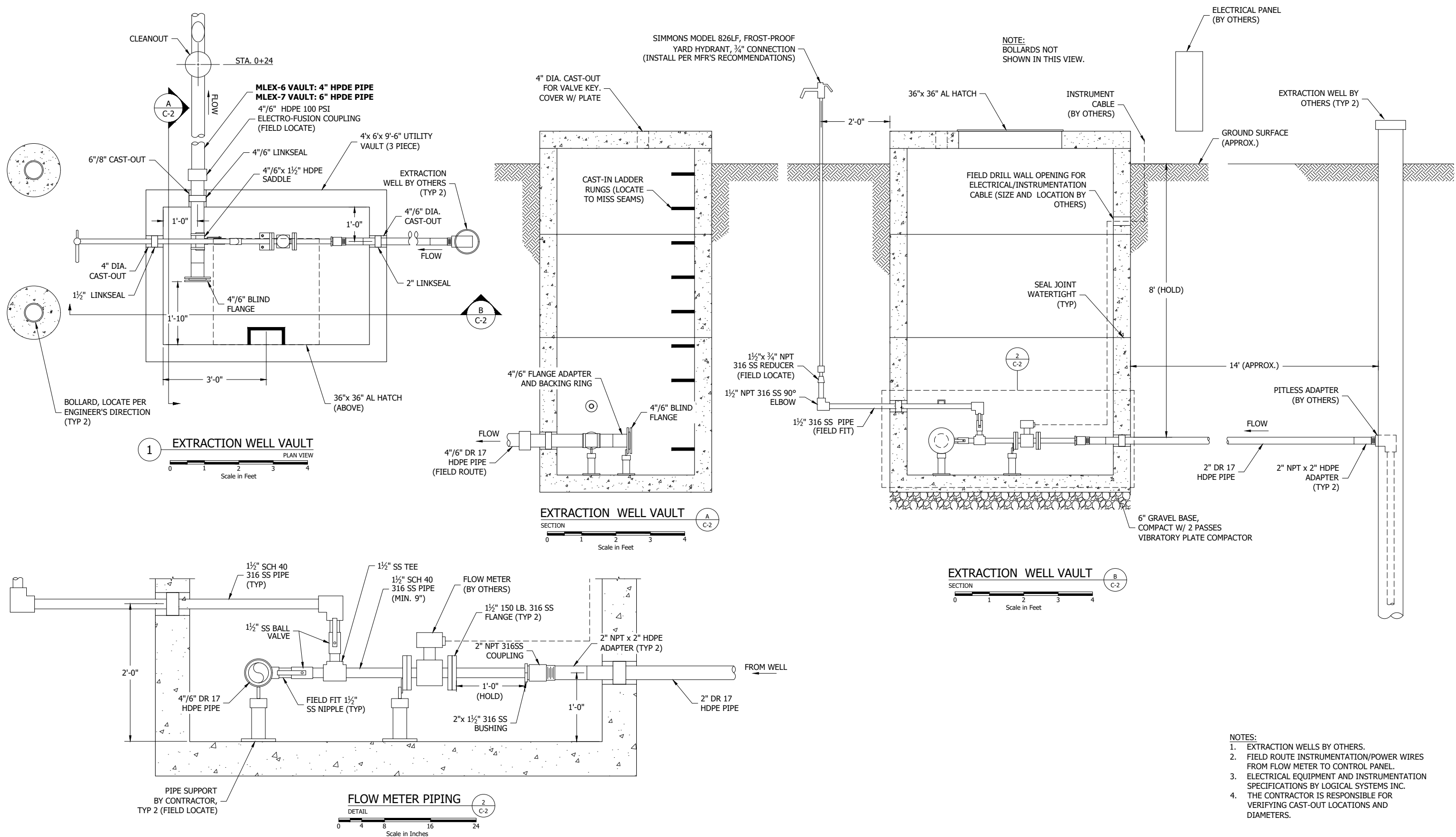




3700 S. INCA STREET  
ENGLEWOOD, CO 80110-3405  
303-761-4130

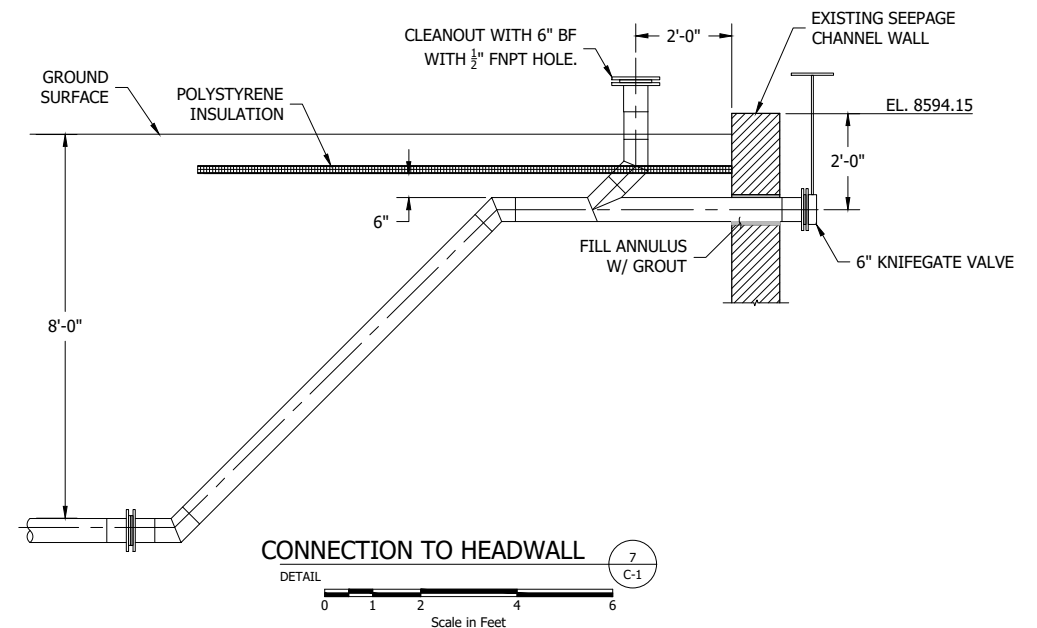
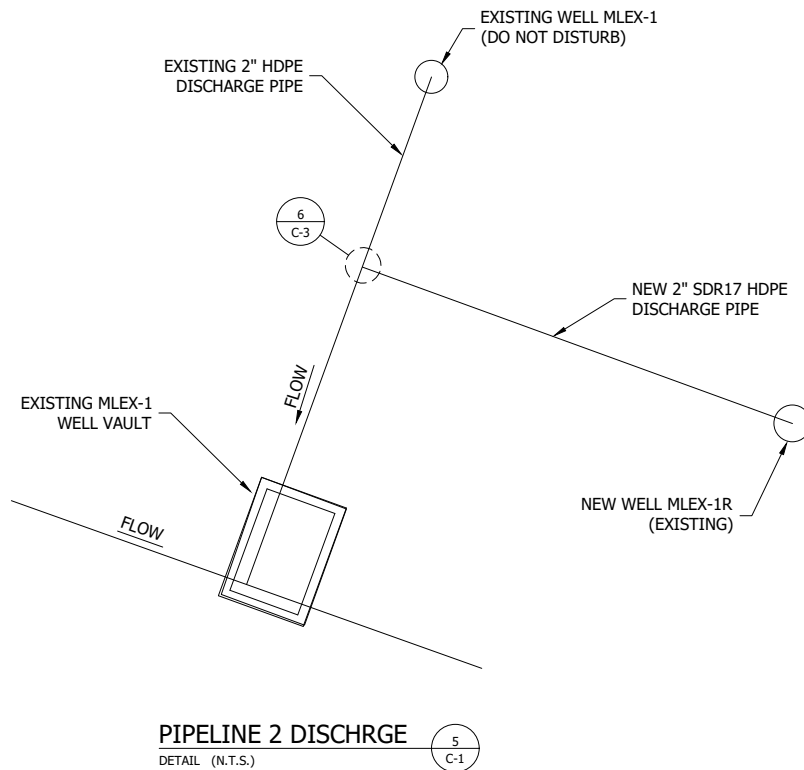
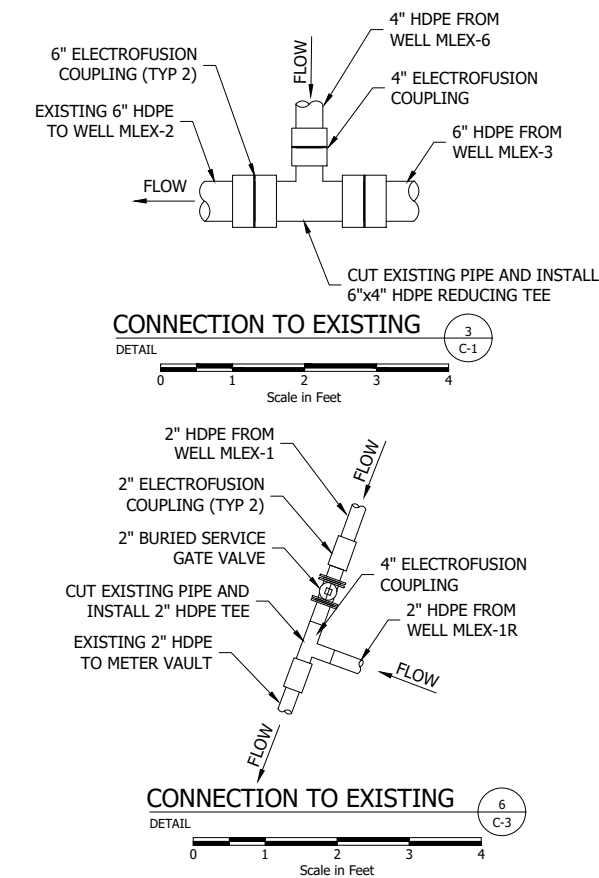
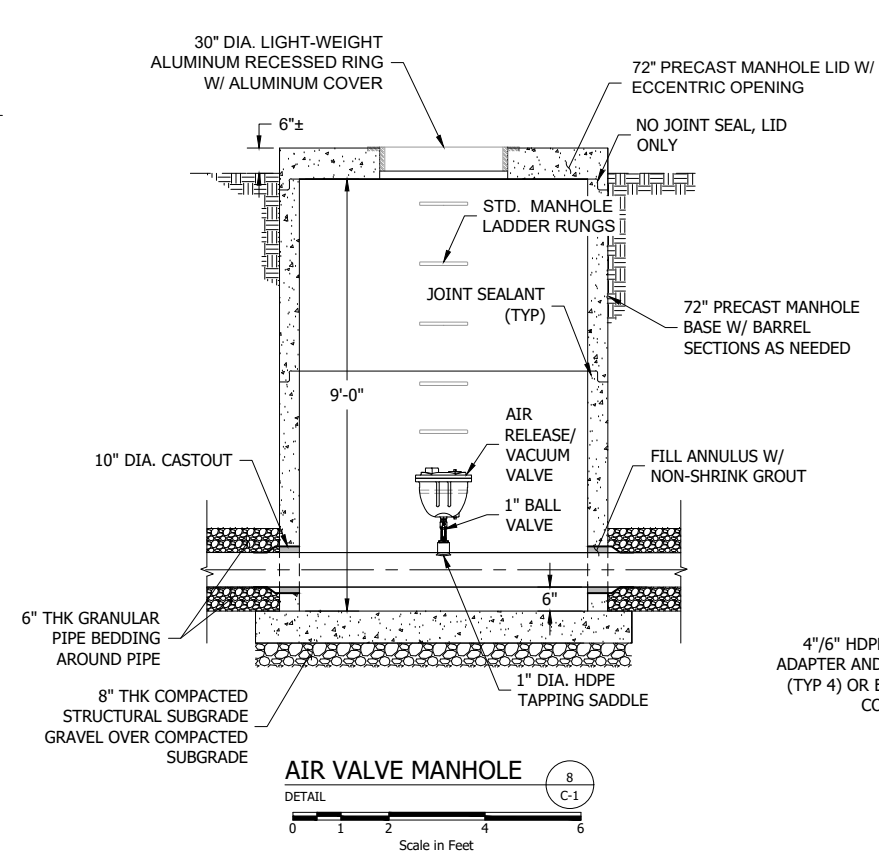
SEEPWATER WELL COLLECTION PIPELINE			Climax Molybdenum Henderson Mill		
PHASE IV MLEX WELLS			Parshall, CO		
MLEX-6 AND MLEX-7 PIPELINES			DRAWN BY SAA	07/24	PROJECT NUMBER 1333.01.17
PLAN AND PROFILE			DESIGNED BY SMM	07/24	DRAWING NO. C-1
			CHECKED BY		



R:\13001133\1333.01\1333.01.07 (Extraction Wells)\Phase IV\IR (SheetFiles)\13330117-003 8-15-24 04:32pm scotta XREFS: Climax22x34 Climax\_4C



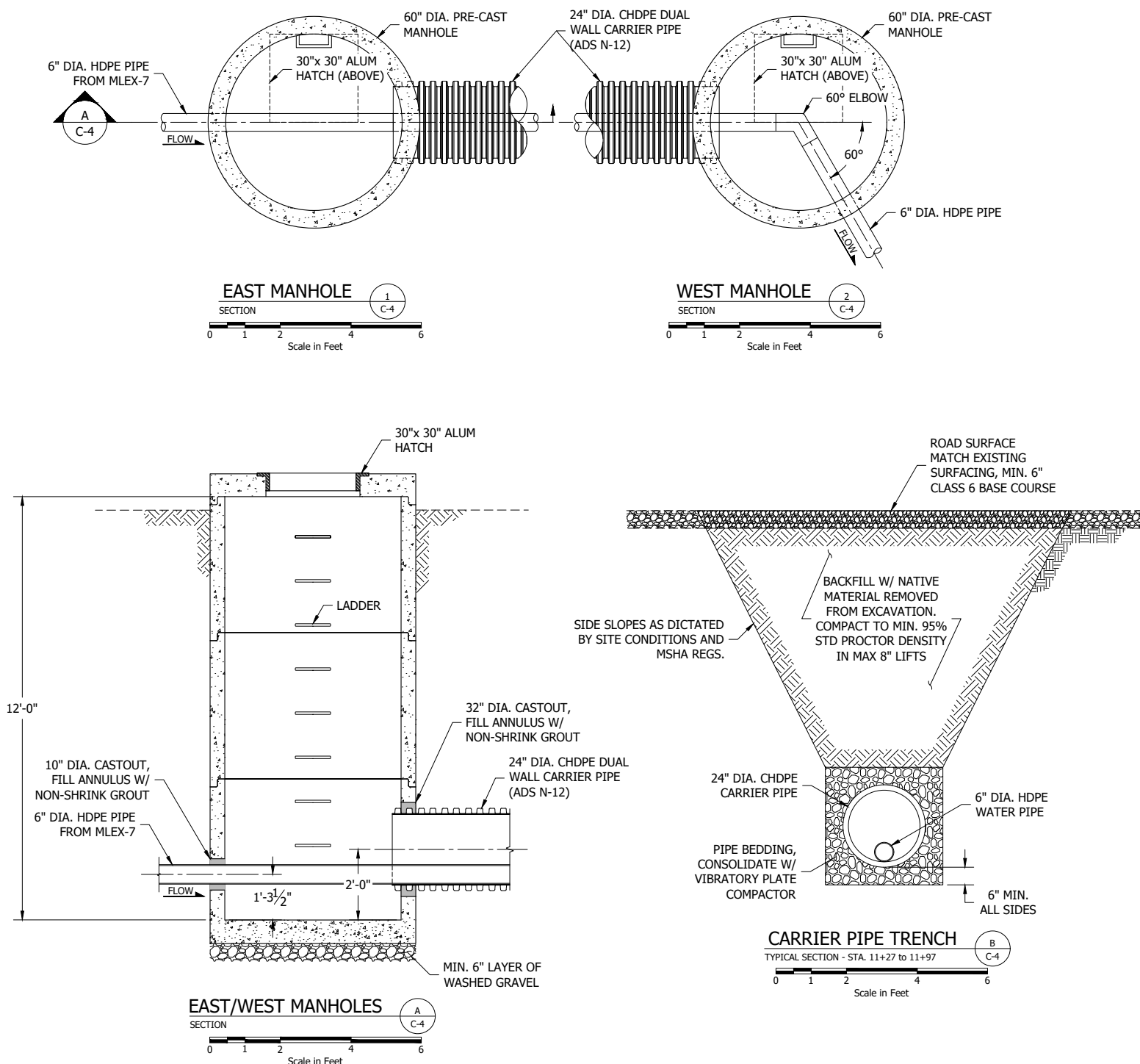
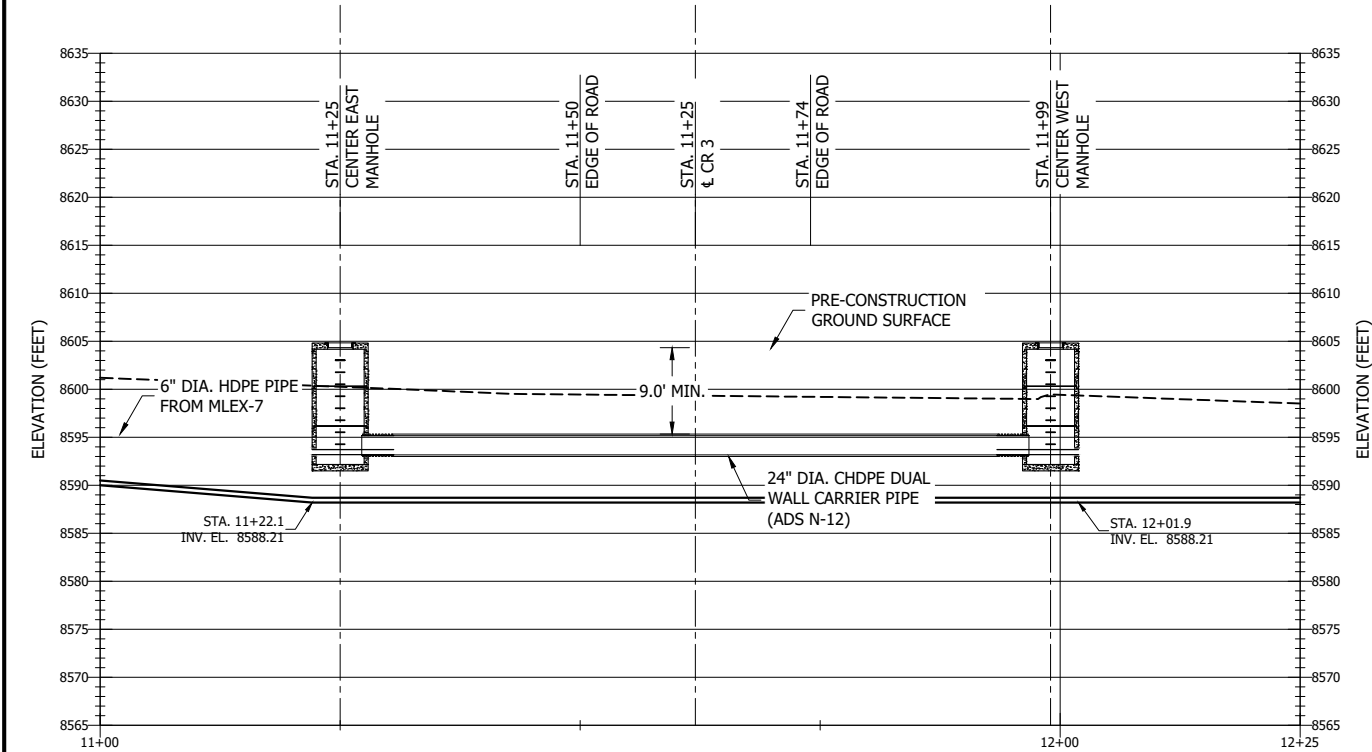
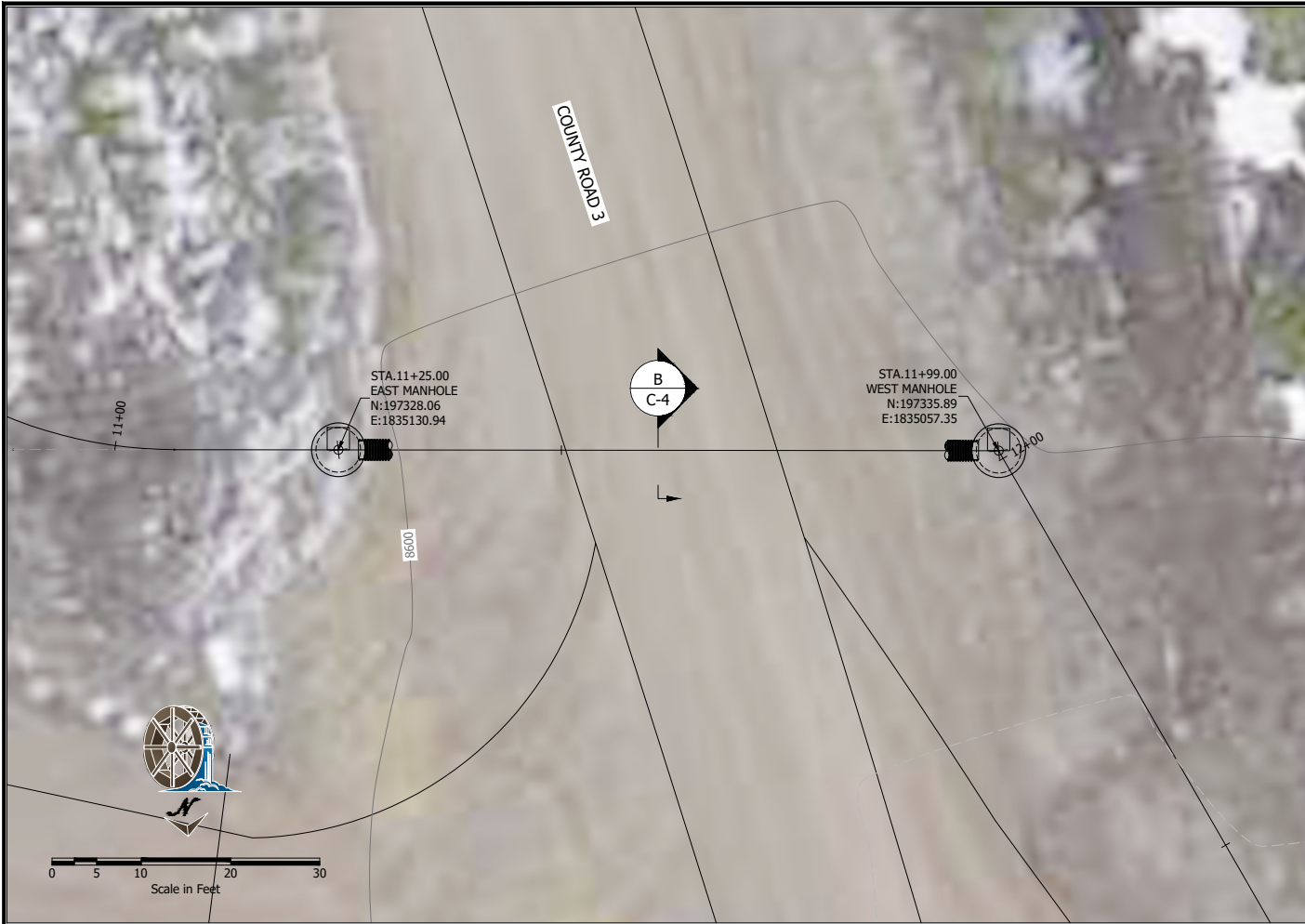
REVISIONS	NO.	DATE	MADE BY	CKD. BY	REMARKS	REFERENCE DWGS	DRAWING NO.	REFERENCE	<div> A Freeport-McMoRan Company</div> <div> W. W. WHEELER &amp; ASSOCIATES, INC. Water Resources Engineers</div> <div>3700 S. INGA STREET ENGLEWOOD, CO 80110-3405 303-761-4130</div>	SEEPWATER WELL COLLECTION PIPELINE			Climax Molybdenum Henderson Mill Parshall, CO		
	1	08/24	SAA	SMM	ISSUED FOR REVIEW					PHASE IV MLEX WELLS	DRAWN BY SAA	04/24	PROJECT NUMBER 1333.01.17		
										EXTRACTION WELL VAULT	DESIGNED BY SMM	04/24	DRAWING NO.		
										DETAILS	CHECKED BY		C-2		



NO. DATE MADE BY CKD. BY REMARKS 08/24 SAA SMM ISSUED FOR REVIEW REVISIONS	"This drawing together with any and all additions, corrections, changes and alterations thereof is the property of Climax Molybdenum Company and is furnished on the express condition that it shall not be reproduced, copied, lent, or disposed of directly or indirectly, nor used for any other purpose than for which it is specifically furnished without the prior written consent of said Climax Molybdenum Company."		DRAWING NO. REFERENCE W. W. WHEELER & ASSOCIATES, INC. 3700 S. INCA STREET Water Resources Engineers CRAWFORD, CO 80110-3405 303-761-4130		SEEPWATER WELL COLLECTION PIPELINE PHASE IV MLEX WELLS PIPELINE TRENCH SECTION AND MISCELLANEOUS DETAILS		Climax Molybdenum Henderson Mill Parshall, CO DRAWN BY SAA 04/24 PROJECT NUMBER 1333.01.17 DESIGNED BY SMM 04/24 DRAWING NO. CHECKED BY C-3	



R:\13001\13331\1333.01\1333.01.07 (Extraction Wells)\DRAWINGS\Phase IV\PR (SheetFiles)\3330117-002 8-15-24 04:32pm scotta XREFS: 2015 Site Map; Climax22x34 11f4b8da-b23a-4939-80c3-d4ec1cc0f14; MosaiC\MG3; c39106g1\_r; c39106h1\_r; Climax\_4C;



REVISIONS	NO.	DATE	MADE BY	CKD. BY	REMARKS
	1	08/24	SAA	SMM	ISSUED FOR REVIEW

"This drawing together with any and all additions, corrections, changes and alterations thereof is the property of Climax Molybdenum Company and is furnished on the express condition that it shall not be reproduced, copied, lent, or disposed of directly or indirectly, nor used for any other purpose than for which it is specifically furnished without the prior written consent of said Climax Molybdenum Company."

REFERENCE DWGS	DRAWING NO.	REFERENCE



A Freeport-McMoRan Company



3700 S. INCA STREET  
ENGLEWOOD, CO 80110-3405  
303-761-4130

SEEPWATER WELL COLLECTION PIPELINE			Climax Molybdenum Henderson Mill		
PHASE IV MLEX WELLS			Parshall, CO		
COUNTY ROAD CROSSING			DRAWN BY SAA	08/24	PROJECT NUMBER 1333.01.17
PLAN, PROFILE, AND DETAILS			DESIGNED BY SMM	08/24	DRAWING NO.
			CHECKED BY		C-4

**ATTACHMENT 3**  
**PITLESS UNIT DETAIL**

Part No: 140290 Order No: 8PS810WBWE0212S

This pitless unit conforms to the Recommended Standards for Water Works, Great Lakes Upper Mississippi River Board of State Public Health & Environmental Managers.

This unit will be completely assembled before shipping.

Maximum rated discharge pressure is 300 psi.

30,000 lb. lift out load rating.

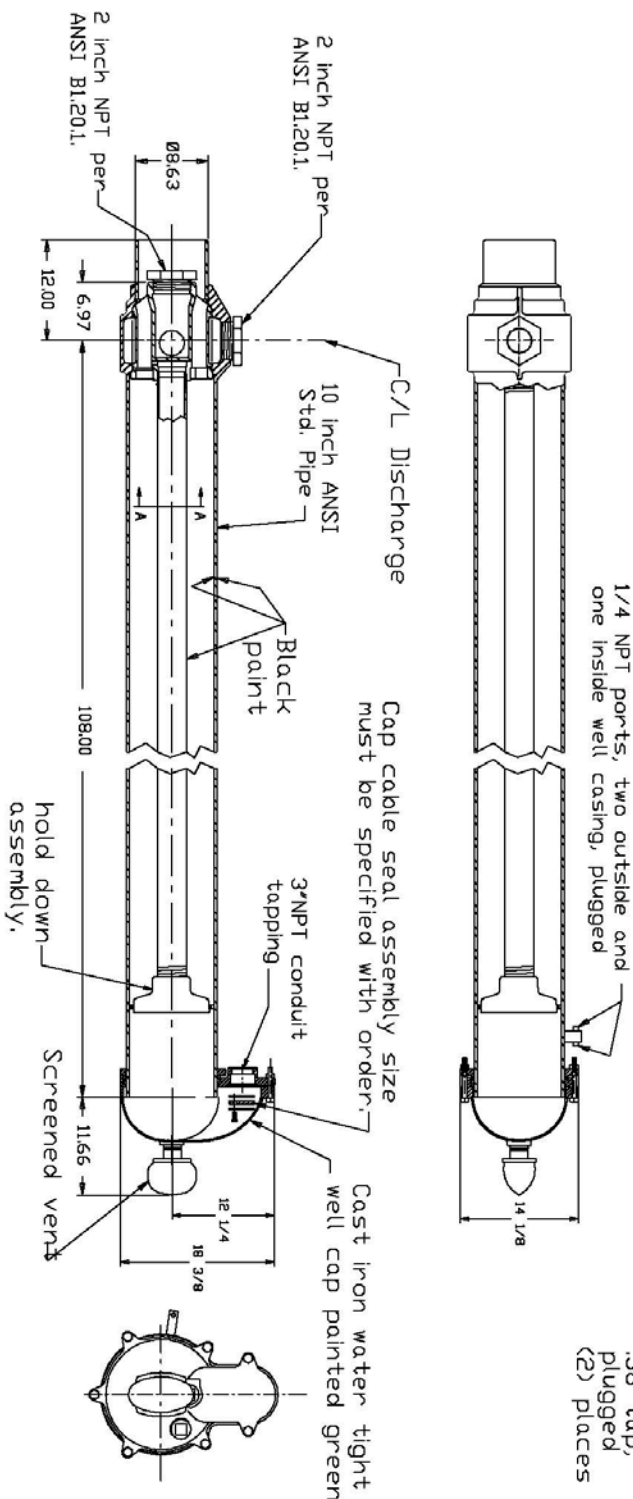
Spool and discharge body are lead free galvanized.

These passages will clear a 1.49 dia. rigid rod parallel to the well casing. (2) places

View A-A

3/8 tap, plugged (2) places

DWG. NO. 140290



DATE	2/14/14	Released To Sales	REVISION	This information is confidential to Baker Mfg. Co. and its subsidiaries. It is to be used only for the purpose intended without the written consent of Baker.	Rev. R	Proj. 140290	Baker Mfg. Co.	DWG. NO.	140290
					DWG. NO.	140290	133 Enterprise St., Evansville, VT, USA 55336	SIZE	B

**FIGURE 4**  
**PITLESS UNIT DESIGN**