4850L ROSS CAMPUS RESTROOMS

DRAWING INDEX			
SHEET #	SHEET NAME		
1	4850L ROSS CAMPUS PIPE PLAN		
2	4850L ROSS CAMPUS WASTE LINE TIE-IN PLAN		
3	WASTE LINE TIE-IN DETAILS		
4	HANGER & PENETRATION DETAILS		
5	#6 WINZE RESTROOM LAYOUT		
6	GRIZZLY RESTROOM LAYOUT		
7	REFUGE CHAMBER RESTROOM LAYOUT		
8	TREATMENT PLANT LAYOUT		
9	TYPICAL BOOSTER PUMP ASSEMBLY		
10	TYPICAL TOILET ASSEMBLY		
11	TYPICAL TREATMENT PLANT ASSEMBLY		
12	4850L ROSS CAMPUS PIPE PLAN DETAILS		
13	4850L ROSS CAMPUS PIPE PLAN DETAILS		
14	4850L ROSS CAMPUS PIPE PLAN DETAILS		
15	4850L ROSS CAMPUS PIPE PLAN DETAILS		
16	4850L ROSS CAMPUS PIPE PLAN DETAILS		
17	4850L ROSS CAMPUS PIPE PLAN DETAILS		

4

SYMBOL LEGEND				
DETAIL CALLOUT:				
TITLE LINE: VIEW TITLE VIEW SCALE				
TITLE LINE W/ VIEW TITLE # DETAIL NUMBER DETAIL NUMBER: VIEW SCALE # SHEET REFERENCE				

4

ROSS SHAFT ROSS CAMPUS

2

4850L PROJECT LOCATION SCALE: 1"= 500'

 $\mathbf{\Phi}$

 $\overline{\mathbb{N}}$

3

3

REV: 0	U	UNLESS OTHERWISE SPECIF		SPECIFIED
DRAWN BY: KJ	ប្រ	DIMENSIO	NS IN	INCHES
DATE: 3/31/2025	RANCI	.X± .1 .XX±	.02	.xxx± .00
12 June 12 June 12	JOLE	ANGLES: ± 1		
CHECKED BY: <u>AD</u>	L	SURFACE FINISH:		
CHECKED DATE: May 20, 2025	DIM	DIMENSIONING AND TOLERANCING PER ASME Y14.5 BREAK EDGES .016 MAX REMOVE BURRS. WELD SPLATTER & LOOSE SCA		ASME Y14.5M-200 AX & LOOSE SCALE
APPROVED BY: AS		WEIGHT: M/ NA		MAT'L: NA
APPROVED DATE: May 20, 2025	Т	THIRD ANGLE		$\neg \phi$
COMMENTS:	PROJECTION		$\neg \Psi$	
4	2			

₽





	PIPE IDENTIFICATION							
SIZE	MATERIAL	FUNCTION	APPROX. LENGTH (FT)	IDENTIFIER				
2	DR11 HDPE	NEW INDUSTRIAL WATER	350	2IN NIW				
2	DR11 HDPE	NEW VENT	200	2IN NV				
2	DR11 HDPE	NEW WASTE	280	2IN NWW				
2	STEEL/COPPER	EXISTING INDUSTRIAL WATER	NA	2IN EIW				
3	DR13.5 HDPE	NEW TREATED	450					
4	DR13.5 HDPE	NEW WASTE	600					
4	HDPE	EXISTING INDUSTRIAL WATER	NA	4IN EIW				
6	STEEL	EXISTING INDUSTRIAL WATER	NA	6IN EIW				

REV: 0	UNLESS OTHERWISE SPECIFIED
DRAWN BY: K1	DIMENSIONS IN INCHES
	.x±.1 .xx±.02 .xxx±.00
DATE: 3/31/2025	$\overset{\tilde{H}}{=}$ ANGLES: ± 1
CHECKED BY: AB	SURFACE FINISH: ⁶³ ∕
CHECKED DATE:	DIMENSIONING AND TOLERANCING PER ASME Y14.5M-200 BREAK EDGES .016 MAX REMOVE BURRS. WELD SPLATTER & LOOSE SCALE
APPROVED BY: AS	WEIGHT: MAT'L: NA NA
APPROVED DATE:	THIRD ANGLE
COMMENTS:	PROJECTION D
Λ	2





Ð





CONCRETE PAD PODS AND PUMP TO BE PLACED BY SDSTA	В
UNIT LAYOUT	¢
NOTES: PODS AND PUMP TO BE PROCURED & PLACED BY SDSTA CONTRACTOR RESPONSIBLE FOR PLUMBING WASTE OUTLET ELEVATIONS ON PODS ARE ADJUSTED FROM MANUFACTURER TO PROVIDE SUFFICIENT GRAVITY FLOW MANUFACTURER TO PROVIDE SUFFICIENT GRAVITY FLOW	А
US FACILITY SOUTH DAKOTA SCIENCE AND TECHNOLOGY AUTHORITY 4850L ROSS CAMPUS RESTROOMS #6 WINZE RESTROOM LAYOUT 12477	
SHEET NUMBER: SIZE SCALE: PER VIEW 0	



	NOTES: PODS AND PUMP TO BE PROCURED & PLACED BY SDSTA CONTRACTOR RESPONSIBLE FOR PLUMBING WASTE OUTLET ELEVATIONS ON PODS ARE ADJUSTED FROM MANUFACTURER TO PROVIDE SUFFICIENT GRAVITY FLOW	A
D 05	SANFORD UNDERGROUND RESEARCH FACILITY	
	SOUTH DAKOTA SCIENCE AND TECHNOLOGY AUTHORITY	
009	4850L ROSS CAMPUS RESTROOMS	
	GRIZZLY RESTROOM LAYOUT	
	12477	
7	SHEET NUMBER: SIZE SCALE: 3/8"=1'-0" REV 6 OF 17 B 0	
	1	•

Ма Ма

В





Ð



-2" GALVANIZED, 12" LG

-2" PVC WASTE IN

P682XPRG102W

 $\frac{1}{7}$

-2" GALVANIZED LATERAL

-4" TO 2" NO-HUB REDUCER

-LIBERTY PUMPS PROVORE 680

2X CHECK VALVE

2X UNION-

В

₽

2X CHECK VALVE-

2X UNION-

SCALE: 3/4"=1'-0"

REFUGE CHAMBER BOOSTER PUMP ASSEMBLY









Ð

1.5" VENT —

1" IW — — 1" IW Ма

REFUGE CHAMBER RESTROOM WALL PENETRATIONS SCALE: NTS

В

₽

Α

- NOTES: TYPICAL HEIGHT OF PIPING FROM FLOOR IN THIS AREA IS APPROX. 8'-0" CONTRACTOR TO DRILL PENETRATIONS THRU WALL



3

 Φ

REFUGE CHAMBER PIPING SCALE: NTS

- NOTES: TYPICAL HEIGHT OF PIPING FROM FLOOR IN THIS AREA IS APPROX. 8'-0" NEW PIPE TO BE HUNG ON NEW TRAPEZE BESIDE EXISTING AS SHOWN

3



REFUGE CHAMBER AIR LOCK PENETRATIONS SCALE: NTS

2

NOTES:

6

- TYPICAL HEIGHT OF PIPING FROM FLOOR IN THIS AREA IS APPROX. 8'-0"
 NEW PIPE TO BE HUNG ON NEW TRAPEZE BESIDE EXISTING AS SHOWN
 CONTRACTOR TO DRILL PENETRATIONS THRU WALL

REV: 0	UNLESS OTHERWISE SPECIFIED	SANFORD			
DRAWN BY: KJ	DIMENSIONS IN INCHES				
		5 FACILITY			
DATE: 3/31/2025	哲 ANGLES: ± 1	SOUTH DAKOTA SCIENCE AND TECHNOLOGY AUTHORITY			
CHECKED BY: $\frac{\mathcal{AB}}{\mathcal{AB}}$	SURFACE FINISH: 💱	4850L ROSS CAMPLIS RESTROOMS			
CHECKED DATE:	DIMENSIONING AND TOLERANCING PER ASME Y14.5M-200 BREAK EDGES .016 MAX				
APPROVED BY: AS	REMOVE BURRS, WELD SPLATTER & LOOSE SCALE WEIGHT: MAT'L: NAL	4850L ROSS CAMPUS PIPE PLAN DETAILS			
APPROVED DATE:	THIRD ANGLE	12477			
COMMENTS:		SHEET NUMBER: SIZE REV 12 OF 17 B SCALE: NTS 0			
4	2	1			

 $\begin{pmatrix} 7\\1 \end{pmatrix}$

В

₽

А



REFUGE CHAMBER AIRLOCK PENETRATIONS DETAIL SCALE: NTS

- NOTES: TYPICAL HEIGHT OF PIPING FROM FLOOR IS APPROX. 8'-0" NEW PIPE TO BE HUNG ON NEW TRAPEZE BESIDE EXISTING AS SHOWN CONTRACTOR TO DRILL PENETRATIONS THRU WALL

4



 $\mathbf{\Phi}$

REFUGE CHAMBER AIRLOCK ENTRANCE PENETRATIONS DETAIL	9
SCALE: NTS	$\bigcirc 1$

3

8

3

- NOTES: TYPICAL HEIGHT OF PIPING FROM F NEW PIPE TO BE HUNG ON NEW TRJ



2

REFUGE CHAMBER DRIFT PIPING DETAIL SCALE: NTS

NOTES:

FLOOR IS APPROX. 8'-0" RAPEZE BESIDE EXISTING AS SHOWN	 TYPICAL HEIGHT OF PI NEW PIPE TO BE HUNG TO TROLLEY DRIFT NEW 4" WASTE AND 2" 	ING FROM FLOOR IS APPROX. 8'-0'' IN NEW TRAPEZE BESIDE EXISTING AS SHOWN FROM REFUGE CHAMBER 'ENT TO BE BE HUNG FROM EXISTING TRAPEZE IN TROLLEY DRIFT				
REV: 0	UNLESS OTHERWISE SPECIFIED	SANFORD				
DRAWN BY: KJ				RESEARCH	UND	
DATE: 3/31/2025	$- \underbrace{\begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$	FACILITY SOUTH DAKOTA SCIENCE AND TECHNOLOGY AUTHORITY 4850L ROSS CAMPUS RESTROOMS 4850L ROSS CAMPUS PIPE PLAN DETAILS 12477 SHEET NUMBER: SIZE SCALE: NTS REV O				
CHECKED BY: $\frac{\mathcal{AB}}{\mathcal{AB}}$	SURFACE FINISH: ⁶³ ∕					
CHECKED DATE: May 20, 2025	DIMENSIONING AND TOLERANCING PER ASME Y14.5M-2009 BREAK EDGES .016 MAX					
APPROVED BY: AS	REMOVE BURRS, WELD SPLATTER & LOOSE SCALE WEIGHT: MAT'L: NA NA					
APPROVED DATE: May 20, 2025	THIRD ANGLE					
COMMENTS:						
4	2			1		



₽

 $\begin{pmatrix} 10\\ 1 \end{pmatrix}$



#6 WINZE DRIFT PIPING DETAIL SCALE: NTS

4

NOTES:

- TYPICAL HEIGHT OF PIPING FROM FLOOR IS APPROX. 8'-0"
 NEW 2" WASTE PIPE IN #6 WINZE DRIFT TO BE INSTALLED ON EXISTING TRAPEZE
 NEW 2" WATER LINE IN #6 WINZE DRIFT TO BE INSTALLED ON EXISTING TRAPEZE



T

TROLLEY & #6 WINZE DRIFT PIPING DETAIL SCALE: NTS

NOTES:

3

3

- NOTES:
 TYPICAL HEIGHT OF PIPING FROM FLOOR IS APPROX. 8'-0"
 NEW 4" WASTE PIPE IN TROLLEY DRIFT TO BE INSTALLED ON EXISTING TRAPEZE
 NEW 2" WASTE PIPE IN #6 WINZE DRIFT TO BE INSTALLED ON EXISTING TRAPEZE
 ADDITIONAL TRAPEZE TO BE ADDED BY CONTRACTOR BETWEEN EXISTING TRAPEZE IN #6 WINZE DRIFT TO CREATE 5'-0" SPACING



2

SCALE: NTS

NOTES:

REV: 0	U	NLESS OTHER	NISE SPECIFIED	
DRAWN BY: K1	S	DIMENSIO	NS IN INCHES	
	NCE	.x± .1 .xx±	.02 .XXX±.00	
DATE: 3/31/2025	DLER/	ANGLES: $\pm 1^{\circ}$		
CHECKED BY: $\frac{AB}{AB}$	μ	SURFACE FINISH: ∛		
CHECKED DATE:	DIM	ENSIONING AND TOLERANCING PER ASME Y14.50 BREAK EDGES .016 MAX REMOVE BURRS, WELD SPLATTER & LOOSE SCA		
APPROVED BY: $\frac{AS}{AS}$		WEIGHT: NA	MAT'L: NA	
APPROVED DATE:	Т	HIRD ANGLE	$\square \oplus$	
COMMENTS:] F	ROJECTION	$\square \Psi$	
<u> </u>	2			

 $\begin{pmatrix} 12\\ 1 \end{pmatrix}$





1

WALL EAST OF AUTOMATIC AIR DOOR -

4

#6 WINZE AIR DOOR PENETRATION DETAIL SCALE: NTS

NOTES:

- CONTRACTOR TO CREATE PENETRATION IN WALL EAST OF AUTOMATIC AIR DOOR
 PIPE TO BE ROUTED THROUGH EXISTING PENETRATION IN AUTOMATIC AIR DOOR WALL
- PIPE TO BE HUNG AS SHOWN USING CLEVIS HANGERS @ 5'-0" SPACING 8'-0" ABOVE FLOOR

TROLLEY DRIFT TRANSITION DETAIL SCALE: NTS

NOTES:

14

3

- TYPICAL HEIGHT OF PIPING FROM FLOOR IN TROLLEY DRIFT IS 8'-0"
 TYPICAL HEIGHT OF PIPING FROM FLOOR IN LARGE DRIFT IS 10'-0"
- PIPE TO BE HUNG FROM EXISTING TRAPEZE IN TROLLEY DRIFT ٠
- •
- PIPE TO BE HUNG FROM VERTICAL UNISTRUT IN LARGE DRIFT



GRIZZLY DRIFT DETAIL SCALE: NTS

UNLESS OTHERWISE SPECIFIED REV: 0 DIMENSIONS IN INCHES DRAWN BY: KJ x±.1 .xx±.02 .xxx±.005 DATE: 3/31/2025 ANGLES: ± 1 CHECKED BY: AB SURFACE FINISH: ⁶³∕ DIMENSIONING AND TOLERANCING PER ASME Y14.5M-2009 BREAK EDGES .016 MAX REMOVE BURRS, WELD SPLATTER & LOOSE SCALE CHECKED DATE: APPROVED BY: AS WEIGHT: NA MAT'L: NA APPROVED DATE: THIRD ANGLE \Rightarrow PROJECTION COMMENTS: 4 2

 $\begin{pmatrix} 15\\ 1 \end{pmatrix}$

4

3



T

2

PREFAB RESTROOMS AND BOOSTER PUMP TO BE PLACED IN THIS AREA BY SDSTA (NOT SHOWN)

NOTES: • TYPICAL HEIGHT OF PIPING FROM FLOOR IS APPROX. 10'-0" PIPE TO BE HUNG FROM VERTICAL UNISTRUT ALONG RIBS



16

1

В

 $\mathbf{4}$

А

Ma

4



GRIZZLY DETAIL SCALE: NTS

NOTES: • PIPE TO BE HUNG USING 12" LG. VERTICAL UNISTRUT @5'-0" SPACING AROUND CAVERN RIB 10'-0" ABOVE FLOOR

 Φ

2

#6 W SCALE:

NOTES

18

3

- IES IN THIS •
- ٠
- INTO SHAFT APPROX. 10'-0" BELOW SILL



TREATED WATER HANGING DETAIL SCALE: NTS

WINZE TREATED WATER DETAIL
: NTS
5:
TIPE TO BE HUNG FROM CLEVIS HANGERS @ 5'-0" SPACING NEAR EXISTING UTILITIE PRIFT AS SHOWN
ENETRATE #6 WINZE WALL AS SHOWN
XISTING TRAPEZE PARALLEL TO SHAFT WALL TO BE USED FOR SUPPORT
ROVIDE 90 DEG FITTING AND 20' HOSE INSIDE SHAFT TO ALLOW WATER TO DUMP

UNLESS OTHERWISE SPECIFIED REV: 0 DIMENSIONS IN INCHES DRAWN BY: KJ .x± .1 .xx± .02 .xxx± .005 DATE: 3/31/2025 ANGLES: $\pm 1^{\circ}$ CHECKED BY: <u>AB</u> SURFACE FINISH: ⁶³∕ DIMENSIONING AND TOLERANCING PER ASME Y14.5M-2009 BREAK EDGES .016 MAX REMOVE BURRS, WELD SPLATTER & LOOSE SCALE CHECKED DATE: APPROVED BY: AS WEIGHT: NA MAT'L: NA APPROVED DATE: THIRD ANGLE \Rightarrow PROJECTION COMMENTS: 4 2

 $\begin{pmatrix} 19\\ 1 \end{pmatrix}$

4

3

NOTES: • PIPE TO BE HUNG USING VERTICAL UNISTRUT AND J HANGERS IN LARGE DRIFT 10'-0" ABOVE FLOOR • PIPE TO BE HUNG USING CLEVIS HANGERS IN #6 WINZE DRIFT 8'-0" ABOVE FLOOR



20

В

┢

4

3

2

(NOT SHOWN)

 $\begin{pmatrix} 22\\ 1 \end{pmatrix}$

Signature: Andrew Brosnahan

Email: abrosnahan@sanfordlab.org

Email: astratman@sanfordlab.org

Signature: Al Stratman

 $\begin{pmatrix} 21\\ 1 \end{pmatrix}$

- WALL TO GRIZZLY

BEGIN CONTRACTOR SCOPE



STATION DETAIL SCALE: NTS

- NOTES: PIPE TO BE HUNG USING VERTICAL UNISTRUT AND J HANGERS HEIGHT OF PIPE TO MATCH EXISTING LINE FROM SHAFT CONTRACTOR TO DRILL PENETRATION THRU GRIZZLY WALL (APPROX. 6" TO 8" SHOTCRETE AND $\frac{1}{2}$ " PLYWOOD)



 Φ

#6 WINZE PIPING DETAIL SCALE: NTS

3

- NOTES: NIW & NWW PIPE TO BE HUNG ON EXISTING TRAPEZE IN DRIFT NIW & NWW PIPE TO BE HUNG ON RIB IN RESTROOM AREA 8'-0" ABOVE FLOOR VENT PIPE TO BE HUNG ON RIB 8'-0" ABOVE FLOOR ALONG ROUTE SHOWN IN PLAN

REV: 0	U	NLESS OTHERWISE SPECIFIED					
DRAWN BY: KJ	CES	DIMENSIONS IN INCHES		RESEARCH			
DATE: 3/31/2025	DLERAN	ANGL	.02 .XXXI .005 .ES: ± 1°	SOUTH DAKOTA SCIENCE AND TECHNOLOGY AUTHORITY			
CHECKED BY: $\frac{\mathcal{AB}}{\mathcal{AB}}$	Ĕ	SURFACE FINISH: ⁶³ ∕		4850L ROSS CAMPUS RESTROOMS			
CHECKED DATE: May 20, 2025	DII	MENSIONING AND TOLERA BREAK EDG	NCING PER ASME Y14.5M-2009 ES .016 MAX				
	┣	WEIGHT:	MAT'L:	4850L R	4850L ROSS CAMPUS PIPE PLAN DETAIL		S
APPROVED DATE: May 20, 2025	Т	HIRD ANGLE	$\square \bigoplus \bigoplus$	12477			
COMMENTS:]	PROJECTION		SHEET NUMBER: 17 OF 17	SIZE B	SCALE: NTS	REV 0
4	2					1	

В

₽

4

PREFAB RESTROOMS AND BOOSTER PUMP TO BE PLACED IN THIS AREA BY SDSTA

В

┢

Α

12477 4850L Ross Campus Restrooms

Final Audit Report

2025-05-20

Created:	2025-05-20
By:	Kyle Jankord (kjankord@sanfordlab.org)
Status:	Signed
Transaction ID:	CBJCHBCAABAAQi2J8AnyMpnz0xWp6HMeapi0aTsSgTcK

"12477 4850L Ross Campus Restrooms" History

- Document created by Kyle Jankord (kjankord@sanfordlab.org) 2025-05-20 3:18:21 PM GMT
- Document emailed to Andrew Brosnahan (abrosnahan@sanfordlab.org) for signature 2025-05-20 - 3:22:47 PM GMT
- Document emailed to Allan Stratman (astratman@sanfordlab.org) for signature 2025-05-20 - 3:22:47 PM GMT
- Email viewed by Allan Stratman (astratman@sanfordlab.org) 2025-05-20 - 3:23:27 PM GMT
- Email viewed by Andrew Brosnahan (abrosnahan@sanfordlab.org) 2025-05-20 - 3:23:28 PM GMT
- Document e-signed by Andrew Brosnahan (abrosnahan@sanfordlab.org) Signature Date: 2025-05-20 - 3:25:02 PM GMT - Time Source: server
- Document e-signed by Allan Stratman (astratman@sanfordlab.org) Signature Date: 2025-05-20 - 3:56:23 PM GMT - Time Source: server
- Agreement completed.
 2025-05-20 3:56:23 PM GMT