APPENDIX K

Site Inspection Field Forms

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ARCADIS | Design & Consultancy for natural and built assets

Boring ID: _____

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date:
Project No.:		Latitude:	Longitude: Ground Surface Elevation:
Site:		Drilling Method:	Drill Rig Model:
Logged by:		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
1300	PID = 0	0	Clean medium sand with little silt, Poorly sorted, damp, light brown,			ATC-1
1305		5	Silt with clay, well sorted, damp, dark brown.			
1310		10	medium clay, well sorted, Saturated, tan/Brown			
1315		15	medium clay with sand, Poorly sorted, Saturated, tan/orange			
		20				
		25				

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date:
Project No.:		Latitude:	Longitude: Ground Surface Elevation:
Site:		Drilling Method:	Drill Rig Model:
Logged by:		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
1150	Water at 3.30	5	medium Sand with silt, poorly sorted, damp, dense, ~~maroon~~ brown/orange, no odor			ATC-2
1200	PID= 0.0	10	medium Sand ~~Poorly~~ well sorted, wet, tan, (mostly water)			
		15				
		20				
		25				

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ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

Field Boring Log

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
1010	~~Color~~ 0.0 on PID	0	Clay with some silt, poorly sorted, damp, dense, brown / no odor			APG-S1A
		5				
1015	↓		Clay with little sand, ~~poorly~~ well sorted, wet, brown with some gray, no odor			
		10				
1020	↓		~~Brown~~ Coarse Sand with little clay, well sorted, tan / black / gray, no odor			
		15				
		20				
		25				
		30				

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ARCADIS | Design & Consultancy for natural and built assets

Boring ID: _____

Field Boring Log

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
0835		0	Medium Sand With Some Silt, well Sorted, damp, brown/orange, no odor.			APG-53-1-SO-(0.5-2) 121521
0840	water @ 7.62 became damp	5	medium Sand With Some clay, well Sorted, damp/moist, grey with Some brown, no odor.			
0845		10	medium Sand, with some clay well sorted, damp, grey with Some brown, no odor.			
		15				
		20				
		25				
		30				

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ARCADIS Design & Consultancy for natural and built assets

Boring ID: APG-BAF-A1-1

Field Boring Log

Client: USAEC	Field Location:	**Boring ID:**	**Date:**
Project No 02118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method: DPT	Drill Rig Model: GEOPROBE 7822 DT
Logged by:		Soil Sampling Method: GRAB	Groundwater Sampling Method: GRAB W/ PERI-PUMP
Drilling Co.: CSI		Hole Diameter: 2 1/4	Total Depth of Boring: Reference Datum:
Driller: DAN MARCHESE		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
1045	0-2 HAND AUGER 3-5 (HAND) AUGER	1 2 3 4 5	CLAYEY SILT, MOIST, MED DENSE BROWN 3-5 SAME AS ABOVE, WET @ 3.5	X		APG-BAF-A1-1-SC(0322) 0.0 PPM
			5-10 NO RECOVERY			0.0's PPM ↓
	4' RECOVERY	10	10-11.10 SILTY SAND W/ F-GRAVEL, WET BROWN 11.10-12.4 SANDY SILT W/ F-GRAVEL, MOIST 12.4-14 SILTY SAND, TRACE F-GRAVEL, MOIST			0.0's PPM
	2' REC.	15	15-17 SAA			0.0
	3' REC	20	20-23 SAND W/ F-C GRAVEL, MOIST, TAN			0-0
		25				

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ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

Field Boring Log

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	25-30 3' REC.	25	25-25.8 SM 25.8-26.4 SILTY CLAY, MOIST BROWN 26.4-28 SAND, W/ F-GRAVEL, WET, TAN			6.0
	30-33 3' REC	30	30-33 SAND, POORLY SORTED, WET, TAN E.O.B.			6.0
		35	DTW: 27.77 DTB: 35 (TOE)			
		40	INSUFFICIENT H_2O TO COLLECT WATER QUALITY READINGS			
		45				
		50				
		55				

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Boring ID: APG-BAF-A1-2

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date: 3/02/21
Project No: 02118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method: DPT	Drill Rig Model: GE 7822DT
Logged by: CB		Soil Sampling Method: 4ENB	Groundwater Sampling Method: 4ENB
Drilling Co.: GSI		Hole Diameter: 2"/4	Total Depth of Boring: Reference Datum:
Driller: Don M.		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	HAND AUGER TO 5'		0-2' CLAYEY SILT, TRACE F-GRAVEL, MOIST BROWN	X		APG-BAF-A1-2-SO(030221) @ ~~1330~~ 1315
			3-5 SAA			0.0 PPM
		5				
	5' REC		5-8 SILTY CLAY, MOIST, BROWN			0.0 PPM
			8-10 SILTY CLAY W/ F-SAND, TRACE F-GRAVEL MOIST, BROWN			
		10				
	4' REC		10-12.5 SAA			0 PPM
			12.5-14 SILTY SAND, MOIST, POORLY SORTED, ORANGE BROWN			
		15				
	2.6' REC		15-17.6 SAA			0 PPM
		20				
	3.6' REC		20-23.8 SILTY F-SAND, MOIST, WELL SORTED, ORANGE BROWN			0 PPM
		25				

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

Field Boring Log

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	28' RECOVERY	25	25-27.8 SAND) TRACE F-GRAVEL, WET WELL SORTED, ORANGE BROWN			0 ppm ↓
	3' REC.	30	30-33 SILTY SAND), W/ FC GRAVEL, WELL WELL SORTED), ORANGE BROWN			0 ppm ↓
		35	E.O.B @ 35'			
		40				
			APG-BAF-A1-2-GW (030221) @ 1415		X	
		45	DTW: 27.11 DTB: 35 TOC 6" STICK-UP?			
		50				
		55				

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Boring ID: APG-BAF-B-1-SO-(0-2)-030221

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date:
Project No: 02118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by:		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	HAND AUGER		0-2 CLAYEY SILT, MOIST, BROWN	X		@1500
		5				
		10				
		15				
		20				
		25				

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

APG-BAF-D-1-SO-(0-2)

Field Boring Log

Client: USAEC	Field Location:	**Boring ID:**	**Date:** 3/3/21
Project No 02118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method: DPT	Drill Rig Model: GEO 7822DT
Logged by: CO		Soil Sampling Method: GRAB	Groundwater Sampling Method: GRAB
Drilling Co.: GSI		Hole Diameter: 2 1/4	Total Depth of Boring: Reference Datum:
Driller: DON M		Depth to First Encountered Water: 25	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER		0-2 CLAYEY SILT, MOIST, MED DENSE BROWN	X		@ 0915
		5	3-5 SILTY SAND, MOIST, LOOSE, ORANGE BROWN			0-9 PPM
						0-0 PPM ↓
	4' REC		4-9' SAA			0 PPM
		10				↓
	3' REC		10-13 SILTY SAND W/ CLAY, MOIST, MED DENSE, ORANGE BROWN			0 PPM
		15				↓
	1.8' REC		15-16.8' SILTY SAND, MOIST, LOOSE ORANGE BROWN			0 PPM
		20				↓
	3'		20-23 SAA WET @ 25'			0 PPM
		25				↓

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

Field Boring Log

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	3'		25-28 SAA M/F-GRAVEL, LOOSE, WET ORANGE BROWN.			0 PPM ↓
		30	E.O.B			
			DTW: 23.35			APG-BAF-MW-1-GW @ 1000
		35	DTB: 29.95 TOC 4" STICK UP			
					X	
		40	WATER SAMPLE @ 1000			
			INSUFFICIENT H2O FOR WATER QUALITY PARAMETERS			
		45				
		50				
		55				

3/3/21

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Boring ID: APG-BAF-E-1

Field Boring Log

Client: USAEC	Field Location:	**Boring ID:**	**Date:**
Project No: 02118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method: DPT	Drill Rig Model: Terra Probe
Logged by: CO		Soil Sampling Method: 6GRS	Groundwater Sampling Method: 6GRS
Drilling Co.: GSI		Hole Diameter: 2 1/4	Total Depth of Boring: Reference Datum:
Driller: Don M		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER		0-2 CLAYEY SILT, LOOSE, MOIST, BROWN			APG-BAF-E-1-SO-(0-2) @ 1630
			3-5 SILTY CLAY, MOIST, MED DENSE, BROWN			0 PPM
	5' REC	5	5-10 SILTY CLAY, MOIST, MED DENSE, BROWN			0 PPM
	4.5' REC	10	10-12.7 SAA			0 PPM
			12.7-14.5 SANDY CLAY W/ F-GRAVEL, MOIST, MED DENSE, ORANGE BROWN			
	1.3' REC	15	15-16.3 SAA			0 PPM
	3.8' REC	20	20-23.8 CLAYEY SAND W/ F-C GRAVEL WET @ 23, MED. DENSE, ORANGE BROWN			
		25				

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

Field Boring Log

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0' REC		25-30 NO RECOVERY - HEAVING SANDS			
		30	DRIVING POINT TO 30' BGS & SET TEMP WELL			
			E.O.B		X	ADG-BAF-E-1-GW @ 1115
		35				
			DTW: 23.70			
		40	DTB: 30 TOC 1.6" STICK UP			
			-PERI PUMP UNABLE TO LIFT WATER			
		45				
		50				
		55				

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ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

APG-BLDG-1059-1

Field Boring Log

Client: USAEC	Field Location:	**Boring ID:**	**Date:**
Project No.: 2118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by:		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0.5 HAND AUGER	5	0-5 CLAYEY SILT, MOIST, MED DENSE, BROWN	X		APG-BLDG-1059-1-SO-(0-2) @ 1200 0 ppm
	5' REC	10	5-10 SANDY SILT w/ CLAY, MOIST MED DENSE, ORANGE BROWN			0 ppm
	5' REC	15	10-15 SANDY SILTY CLAY w/ F-GRAVEL, DENSE, MOIST, ORANGE BROWN			0 ppm
	3.7' REC	20	15-18.7 CLAYEY SAND w/ F-GRAVEL, MED DENSE, MOIST ORANGE BROWN			0 ppm
	3.9' REC	25	20-23.9 F-SAND TRACE F-GRAVEL WELL SORTED, MOIST, MED DENSE, ORANGE BROWN			0 ppm

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

Field Boring Log

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	5' REC	30	25-28.8 CLAY W/ TRACE F-SAND MOIST, DENSE, ORANGE BROWN 28.8-30 SILTY SAND) W/ F-GRAVEL, WET, DENSE, ORANGE BROWN			0 ppm ↓
	4' REC	35	30-34' F-SAND, WELL SORTED MED DENSE, WET, ORANGE BROWN		X	0 PPM ↓
		40	E.O.B @ 34'			
		45	DTW: 30.54' DTB: 34.02 STICK UP 2'			
		50	APA-BLDG-1059-1-GW-030321 @ 1230			
		55				

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ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

APG-BLDG-1065-1

Field Boring Log

Client: USAEC	Field Location:	**Boring ID:** APG-BLDG-1065-1	**Date:** 3/3/21
Project No.: 2118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method: DPT	Drill Rig Model: 7728 DT
Logged by: CO		Soil Sampling Method: GRAB	Groundwater Sampling Method:
Drilling Co.: GSI		Hole Diameter: 2 1/4	Total Depth of Boring: Reference Datum:
Driller: DOM M		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER	5	0-5 CLAYEY SILT, TRACE - F-GRAVEL MOIST, MED DENSE, BROWN	X		APG-BLDG-1065-1-SO-(0-2)@1320 0 PPM
	5' REC	10	5-10 SILTY CLAY TRACE F-GRAVEL MOIST, DENSE, ORANGE BROWN			0 PPM
	3.8' REC.	15	10-11.4 SAA 11.4-13.8 CLAYEY SAND W/ F-C GRAVEL, MOIST, MED DENSE, ORANGE BROWN			0 PPM
	3.5' REC	20	15-18.5 SAA			0 PPM
	3' REC	25	20-21.2 SAA 21.2-22 SANDY CLAY W/ F-C GRAVEL 22-23 CLAYEY SAND W/ F-C GRAVEL MOIST, MED DENSE, ORANGE BROWN			

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

Field Boring Log

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	4' REC	30	25-29 SAA WET @ 28'			0 ppm
	0' REC	35	30-35 NO RECOVERY - HEAVING SANDS DRIVING POINT TO INSTALL TEMP WELL			
		40	E.O.B. 35'		X	ARB-BL26-1065-1-GW @ 1400
		45	DTW: 28.15 DTB: 35 0' STICK UP			
		50				
		55				

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

APG-MFRI-2

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date:
Project No.: 12118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by:		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER	5	0-5 CLAYEY SILT TRACE F-GRAVEL MED DENSE, MOIST-WET BROWN			0 PPM
	4' REC	10	5-7 SAA 7-7.7 CLAYEY SAND WET, ORANGE BROWN 7.7-9 F-C SAND W/ CLAY, WET, ORANGE BROWN	X		APG-MFRI-2-SO-(8-10)@ 1400 0 PPM
	4' REC	15	9-10 SAA BROWN 10-12.4 SAA 12.4-14 CLAY W/ F-GRAVEL MOIST, DENSE, ORANGE BROWN			0 ppm
	2' REC	20	15-17 F-C SAND, POORLY SORTED, MOIST, ORANGE BROWN			0 ppm
	3' REC	25	20-23 SAA			

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

Field Boring Log

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	2' REC	30	25-27 F-SAND W/ F-C GRAVEL WELL SORTED, MOIST, MED DENSE, ORANGE BROWN			0 PPM
	3' REC	35	30-33 SAA WET			0 PPM
	0' REC	40	35-36 POINT DRIVEN DOWN TO -36 SET TEMP WELL		X	APG-MFR1-2-GW @ 1430
		45	E.O.B. @ 36'			
		50	DTW: 34.70 DTB: 37.00 1' STICK UP			
		55				

TURB	TEMP	pH	ORP	COND	DO
OR	13.67	4.91	152	0.066	3.89

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

APG - LOADING - PAD - 1

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date: 3/4/21
Project No: 2118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model: 7728IT
Logged by: CD		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.: ESI		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller: DON M		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5' HAND AUGER	0-5	CLAYEY SILT, TRACE F-GRAVEL MOIST, LOOSE, BROWN			APG-LOADING_PAD-1-SO-(0-2)@ 0 PPM
	5' REC	5	5-6 SILTY SAND, TRACE F GRAVEL MOIST, MED DENSE, GRAY			0 PPM
	4' REC	10	6-10 SILTY SAND, TRACE F GRAVEL WET @ 8', MED DENSE, BROWN 10-12 SAA			0 PPM
	5' REC	15	12-14 CLAY, MOIST, DENSE GRAY 15-20 SAA			0 PPM
	5' REC	20	20-25 SAA			0 PPM
		25				

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

Field Boring Log

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	5' RCC	30	~~25~~-~~25~~.10 SAA ~~25~~.10-30 CLAYEY F-SAND, WELL SORTED, WET, DENSE, GRAY			0 PPM ↓
	5' REC	35	30-34 SAND, WELL SORTED, WET, LOOSE, GRAY 33-34 CLAY, DENSE, MOIST, GRAY			APG-LOADING-PAD-1-GW @
		40	E.O.B @ 34'			
		45	DTN: 4.47 DTB: ~~35~~ 1' OF STICK UP			
		50				
		55				

APG-Loading-PAO-1-GW-030421

@ 0950

TURB:	TEMP	PH	ORP	COND	DO
OR	16.45	5.99	51	.240	4.97

ARCADIS Design & Consultancy for natural and built assets

Boring ID: APG-HANGAR-1060-1

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date: 3/4/21
Project No.: 02118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by: CC		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.: GSI		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller: DAN M.		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5' HAND AUGER	5	0-5 CLAYEY SILT TRACE F-GRAVEL MED DENSE, DRY, BROWN	X		APG-HANGAR-1060-1-SO-(0-2) @ 1640 0 PPM
	4.9' REC	10	5-9.9 SANDY CLAY TRACE F-GRAVEL MOIST, MED DENSE, ORANGE BROWN			0 PPM ↓
	3.9' REC	15	10-13.9 SAA			0 PPM ↓
	3' REC	20	15-18 COARSE SAND W/ SOME PEBBLES, MOIST, MED DENSE, ORANGE BROWN			0 PPM ↓
	3' REC	25	20-23 F-C SAND W/ SOME PEBBLES, MOIST, LOOSE, ORANGE BROWN			0 PPM ↓

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

Field Boring Log

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	26' REC	30	25-26 SAA 26-26.2 CLAY LAYER 26.2-27.6 CLAYEY F-C SAND, POORLY SORTED, MOIST, ORANGE BROWN			0 PPM ↓
	39' REC	35	30-33.9 F-C SAND, WELL SORTED WET, ORANGE BROWN		X	0 PPM ↓ AD6-HANGAR-1060-1-GW
		40	E.O.B @ 35'			@ 1130
		45	DTW: 28.50 DTB: 35 NO STICK UP			
		50				
		55				

TURB	TEMP	PH	ORP	COND	DO
OR	14.62	4.24	147	.354	1.37

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

APG-MFR1-1

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date: 3/4/21
Project No.: 02118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method: DPT	Drill Rig Model: 7728 DT
Logged by: CB		Soil Sampling Method: DPT	Groundwater Sampling Method: GRAB
Drilling Co.: GSI		Hole Diameter: 2 1/4	Total Depth of Boring: Reference Datum:
Driller: JOHN M.		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER	5	0-5 CLAYEY SILT SOME F-C GRAVEL DRY, BROWN			0 PPM ↓
	5' REC	10	5-10 SAA MOIST @ 8'	X		0 PPM APG-MFR1-1-SO-(8-10) @ 1215
	5' REC	15	10-12.8 F-C SAND; WET, LOOSE, ORANGE BROWN 12.8-15 CLAY, MOIST, DENSE ORANGE BROWN			0 PPM ↓
	2.8' REC	20	15-17.8 SANDY CLAY, MOIST DENSE, ORANGE BROWN			0 PPM ↓
	4' REC	25	20-24 F-SAND, WELL SORTED, MOIST, ORANGE BROWN			0 PPM ↓

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

Field Boring Log

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	3' REC	30	25-26.5 SAA 26.5-26.9 CLAY LAYER 26.9-28 F-C SAND SOME GRAVEL MOIST, DENSE, ORANGE BROWN			0 ppm ↓
	3' REC	35	30-33 SAA			0 ppm ↓
	0' REC	40	- NO RECOVERY - POINT DRIVEN TO 39' TEMP WELL SET		X	MW-MFIR1-1-GW (2) 1300
		45	E.O.B @ 39'			
		50	DTW: 33.60 DTB: 39.70 1' STICK UP			
		55				

TURB	TEMP	PH	ORP	COND	DO
OR	15.90	5.21	42	0.088	0.0

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

APG-ABR7-1

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date: 3/5/21
Project No.: 02118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method: DPT	Drill Rig Model: 7725 DT
Logged by: LC		Soil Sampling Method: GRAB	Groundwater Sampling Method:
Drilling Co.: CSI		Hole Diameter: 2 1/4	Total Depth of Boring: Reference Datum:
Driller: DAN M		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	4' REC USED RIG UNABLE TO H.A.	5	0-1 GRAVEL, ROCK 1-4 SILTY SAND) SOME F-C GRAVEL MOIST, DENSE, ORANGE BROWN	X		APG-ABR7-1-SO-(0-2) @ 1030
	5' REC	10	5-10 SANDY SILT, SOME F-C GRAVEL, MOIST, DENSE, BROWN			0 PPM
	5' REC	15	10-11.5 SAA 11.5-12.2 CLAY DENSE GRAY 12.2-15 F-SAND TRACE F-GRAVEL WELL SORTED, MOIST, DENSE, TAN			0 PPM
	4' REC	20	15-16.6 SAA 16.6-16.8 CLAY LOOSE 16.8-17.8 F-SAND 17.8-18.2 CLAY LOOSE			0 PPM
	4' REC	25	18.2-19 F-SAND WET 20-23 SAA 23-24 SANDY CLAY DENSE MOIST TAN/BROWN		X	0 PPM APG-ABR7-4-GW @ 1345

E.O.B @ 25

DTW: 17.05
DTB: 25 NO STICK UP

TURB	TEMP	PH	ORP	COND	DO
OR	12.26	3.57	228	0.217	2.32

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

APG-ABR6-1

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date: 3/5/21
Project No.: 2118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method: DPT	Drill Rig Model: 7725 DT
Logged by: CO		Soil Sampling Method: 6 GRAB	Groundwater Sampling Method:
Drilling Co.: CSI		Hole Diameter: 2 1/4	Total Depth of Boring: Reference Datum:
Driller: DAN M		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER	5	0-5 SANDY SILT TRACE F-GRAVEL MOIST, MOD DENSE, ORANGE BROWN			0 ppm ↓
	4' REC	10	5-9 SAA			0 ppm ↓
	1.4' REC	15	10-11.4 SAA			0 ppm
	0' REC	20	NO RECOVERY			NA
	0' REC	25	NO RECOVERY			NA

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

Field Boring Log

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	3.5' REC	30	25-26 SANDY CLAY, WET DENSE ORANGE BROWN 26-28.5 F-SAND WELL SORTED MED DENSE, WET, ORANGE BROWN		X	APG-ABRG-1-GW @ 0930
			E.O.B @ 30'			
		35	DTW: 20.40 DTB: 30. NO STICK UP			
		40				
		45				
		50				
		55				

TURB	TEMP	pH	ORP	COND	DO
OR	9.47	3.48	202	0.170	5.46

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

APG-BONEYARD-3

Field Boring Log

Client: USAEC
Project No: 02118216.3005.8AC00
Site: Aberdeen Proving Ground
Logged by: CO
Drilling Co.:
Driller:
Field Location:

Boring ID:
Date: 3/8/21
Latitude:
Longitude:
Ground Surface Elevation:
Drilling Method:
Drill Rig Model:
Soil Sampling Method:
Groundwater Sampling Method:
Hole Diameter:
Total Depth of Boring:
Reference Datum:
Depth to First Encountered Water:

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5' HAND AUGER	5	0-5 CLAYEY SILT, DRY, MED DENSE, BROWN	X		APG-BONEYARD-3-SO-(0-2) @ 1210 0 ppm
	2' REC	10	5-7 F-C SAND SOME F-C COBBLES, POORLY SORTED, LOOSE ORANGE BROWN			0 ppm
	3.4' REC	15	10-13.4 CLAYEY F-SAND TRACE F-COBBLES, POORLY SORTED, MOIST ORANGE BROWN			0 ppm
	3' REC	20	15-18 SAA			0 ppm
	0' REC	25	NO RECOVERY - ROCKS STUCK GOING TO DRIVE POINT TO		X	APG-BONEYARD-3-GW @ 1250

25' FEET & SET WELL

25' E.O.B @ 25'

DTW:
DTB:

TURB	TEMP	pH	ORP	COND	DO
OR	15.88	5.69	294	0.064	1.70

APG-Boneyard-3-GW-030421
@ 1250

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

APG-BOATYARD-4

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date:
Project No: 02118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by:		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER		0-4 SILT, DRY, LOOSE, BROWN 4-5 SANDY SILT SOME F-C GRAVEL MOIST, MED DENSE ORANGE BROWN	X		APG-BOATYARD-4-SO-(0-2) @ 1330
	5' REC	5	5-10' SAA			0 PPM ↓
	3' REC	10	10-13' F-SAND, WELL SORTED, MOIST, DENSE, ORANGE BROWN			0 PPM ↓
	3' REC	15	13-16 F-C SAND, MOIST, ORANGE BROWN 16-16.6 SILTY SAND, RED BROWN 16.6-17 CLAYEY SAND TAN ~~16.7-18 F-SAND, WELL SORTED, TAN~~			0 PPM ↓
	3.10' REC	20	20-23.10 SAA WET @ 23'			0 PPM
		25				

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

Field Boring Log

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	31 REC	25	25-28 F-SAND, WELL SORTED, WET, LOOSE, TAN			
		30	E.O.B @ 28'		X	APG-BONEYARD-4-GW @ 1415
		35				
		40				
		45				
		50				
		55				

DTW: 25.22
DTB: 30 STICK UP: 2.3'

APG-Boneyard-4-GW-030821
@ 1415

~~TURB~~	TEMP	pH	ORP	COND	DO
OR	15.27	6.17	162	0.109	3.57

Page __ of __

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

APG - BONEYARD - 2

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date:
Project No.: 2118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by:		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5' HAND AUGER		0-4 CLAYEY SILT, MOIST MED DENSE BROWN	X		APG-BONEYARD-2-SO-(0-2) @ 1110
		5	4-5 F-C SAND, WELL SORTED, MOIST, ORANGE			0 PPM
	4' REC		5-9 F-C SAND, POORLY SORTED, DRY, MED DENSE, GRAYISH TAN			0 PPM ↓
	4' REC	10	10-14 F-C SAND, TRACE F- GRAVEL CLAY SEAM @ 12.2 - 12.4, MOIST MED DENSE, ORANGE BROWN / TAN			0 PPM ↓
	3.4 REC	15	15-18.4 F-SAND, POORLY SORTED WET @ 17', GRAY / TAN			0 PPM ↓
	3' REC	20	20-23 SAA 21.6-21.10 CLAY LENSE		X	0 PPM ↓
		25				

E.O.B @ 24'

APG-BONEYARD-2-GW @ 1140

PTW: 19.65
DTB: 25.00 STICK UP: 1.6'

TURB	TEMP	PH	COND	ORP	DO
OK	12.92	6.25	0.112	130	6.11

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

APG-BONEYARD-5

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date: 3/5/21
Project No.: 2118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model: 7725 IST
Logged by: CO		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER	5	0-4 CLAYEY SILT, MOIST, MED DENSE, BROWN 4-5 F-SAND, LOOSE, POORLY SORTED MOIST, ORANGE BROWN	X		APG-BONEYARD-5-SO-(0-2) @ 1000 0 PPM
	4' REC	10	5-9' F-C SAND, POORLY SORTED, DRY, MED DENSE, LIGHT BROWN			0 PPM
	3' REC	15	10-13' F-SAND W/ TRACE F-C COBBLES, MED DENSE, MOIST TAN (POORLY SORTED)			0 PPM
	3.5' REC	20	15-18.5' SAA WET @ 18 ft			0 PPM
	3.5'	25	20-23.5 SAA		X	0 PPM APG-BONEYARD-5-GW @ 1035

E.O.B @ 25'

DTW: 15.10

DTB: 25.20 NO STICK UP

TURB
OR

APG-Boneyard-5-GW-030821
@ 1035

TURB OR	TEMP	PH	ORP	COND	DO
	12.43	6.42	114	0.138	0

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Boring ID: APG-ABR3-1

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date: 3/5/21
Project No: 02118216.3005.6AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by: RD		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER	5	0-2 CLAYEY SILT, MOIST, LOOSE BROWN 2-5 SILTY CLAY, WET, BROWN	X		APG-ABR3-1-SO-(0-2) @ 0830 0 ppm
	5' REC	10	5-6.5 CLAYEY SAND, WET, ~~LOOSE~~ BROWN 6.5-10 SAA			0 PPM
	5' REC	15	10-14' SAA 14-15' F-SAND, MOIST, DENSE, ORANGE BROWN			0 ppm
	4' REC	20	15-16 SAA 16-18.2 SANDY CLAY, DENSE, MOIST BROWN 18-.2-19 SANDY CLAY, DENSE, WET ORANGE BROWN			0 ppm
	3' REC	25	20-21.7 SAA 21.7-23 CLAY, DENSE, MOIST, BROWN		X	0 ppm APG-ABR3-1-GW @ 0930

E.O.B @ 25'

DTW: 15.10

DTB: 26.70 STICK UP 2.8

~~DRRB~~	TEMP	PH	~~ORP~~ COND	ORP	DO
OR	12.86	*3.00	0.214	158	0.13

pH METER WOULD NOT CALIBRATE

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

APG-OLD-FTA-2

Field Boring Log

Client: USAEC	Field Location:	**Boring ID:**	**Date:** 3/11/21
Project No.: 2118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by:		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER	5	0-2 SANDY SILT SOME F-C GRAVEL LOOSE, MOIST BROWN 2-5 SILTY CLAY, MOIST, MED DENSE, BROWN			APG-OLD-FTA-2-SO-(COMP) @ 1325 0 PPM
	5' REC	10	5-10 SAA TRACE F-C GRAVEL			0 PPM ↓
	3' 12 GA	15	10-11 SAA 11-13 SANDY CLAY, WELL SORTED DENSE, MOIST BROWN			0 PPM ↓
	3' REC	20	15-18 F-SAND, TRACE F-C GRAVEL, WELL SORTED, MOIST DENSE, ORANGE BROWN			0 PPM ↓
	3' REC	25	20-23 F-SAND, WELL SORTED MOIST, DENSE, ORANGE BROWN			0 PPM

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

Field Boring Log

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	3' REC	30	25-28' SAA WET @ 28'			0ppm ↓
	1' REC	35	30-31 F-C SAND, SOME F-C GRAVEL, POORLY SORTED, WET, MOOSE; BROWN		Y	0 MPG-OLD-FTA-2-GW@
		40	G.O.B @ 84			1410
		45				
		50				
		55				

DTW: 28.97

DTB: 34.80 1.8' STICK UP

TURB	TEMP	pH	ORP	COND	DO
OR	19.96	5.22	204	0.064	5.80

ARCADIS Design & Consultancy for natural and built assets

Boring ID: APG-OLD-FTA-1

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date:
Project No.: 02118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by:		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER	5	0-5 SILTY CLAY, TRACE F GRAVEL MOIST, DENSE, BROWN	X		APG-OLD-FTA-1-SO-(0-2) @ 1230 0 PPM
	5' REC	10	5-10 SAA			0 PPM ↓
	5' REC	15	10-12.4 SAA 12.4-15 CLAYEY SAND, TRACE F-C GRAVEL, WELL SORTED, MOIST, MED DENSE, BROWN			0 PPM ↓
	3' REC	20	15-18 F-SAND, WELL SORTED MOIST, MED DENSE, ORANGE BROWN			0 PPM ↓
	3' REC	25	20-23 SAA			0 PPM ↓

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

Field Boring Log

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	3' REC	30	25-28 SAA SOME - F-C GRAVEL @ 28'			0 PPM
	3' REC	35	30-33 F-SAND, SOME F-C GRAVEL WELL SORTED, WET, BROWN			0 PPM
		40	E. 0.8 @ 34'		X	ADG-ETA-FTA-1-6W @ 1340
		45				
		50				
		55				

DTW: 27.72

DTB: 35 0.8' STICK UP

TURB	TEMP	PH	ORP	COND	DO
OR	14.42	5.30	186	0.094	2.71

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

APG-BONEYARD-6

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date: 3/11/21
Project No.: 2118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by:		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER	5	0-4 SILT, MOIST, MED DENSE BROWN 4-5 CLAYEY SAND	X		APG-BONEYARD-6-SO-(0-2) @ 1045 0 ppm
	4' REC	10	5-9 CLAYEY SAND, WELL SORTED MOIST, MED DENSE, BROWN			0 ppm ↓
	4' REC	15	10-11 SAA 11-11.5' CLAY, SOME F-C COBBLES 11.5-14 F-SAND, TRACE F-COBBLE WELL SORTED, MOIST, TAN			0 ppm ↓
	3.10' REC	20	15-18.10 SAA WET		X	APG-BONEYARD-6-GW @ 1120
		25	E.O.B @ 20'			

DTW: 16.65

DTB: 19.80 - F STICK UP

TURB	TEMP	pH	ORP	COND	DO
OIR	16.61	5.46	142	0.061	1.52

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

APG-BONEYARD - 7

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date: 3/11/21
Project No.: 02118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method: DPT	Drill Rig Model: 7728 DT
Logged by: CO		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.: ES1		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER	5	0-4 SILT, MOIST, LOOSE, BROWN 4-5 SANDY CLAY, MOIST, LOOSE, BROWN	X		APG-BONEYARD-7-SO-(0-2) @ 0930 0.2 ppm @ 2'
	4' REC	10	5-9 SAA			0 ppm
	4' REC	15	10-10.10 SAA 10.10-14 F-C SAND, SOME F-C COBBLES, POORLY SORTED, MOIST, MED DENSE, ORANGE BROWN			0 ppm
	4' REC	20	15-19 F-SAND, WELL SORTED, WET, MED DENSE, ORANGE BROWN			0 ppm
		25	E.O.B @ 20'		X	APG-BONEYARD-7-GW-(@ 1010

DTW: 15.91

DTB: 20 1' STICK UP

TURB	TEMP	PH	ORP	COND	DO
OR	14.64	5.63	135	0.053	6.69

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

APG-BONEYARD-1

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date: 3/11/21
Project No.: 2118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by:		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER	5	0 - 5 SILT, MOIST, LOOSE, BROWN	X		APG-BONEYARD-1-SO-(0-2) @ 0830 0 PPM
	5' REC	10	5-7 SAA 7-8.2 CLAY, DENSE, MOIST, ORANGE BROWN 8.2-10 SANDY SILT, MOIST, DENSE, ORANGE BROWN			0 PPM ↓
	3' REC	15	10-13 F-SANDY, WELL SORTED, MOIST, MED DENSE, ORANGE BROWN			0 PPM ↓
	2.5' REC	20	15-17 SAA 17.0-17.2 COARSE GRAVEL 17.2-17.5 CLAY, DENSE, ORANGE BROWN			0 PPM ↓
	3' REC	25	20-20.4 SAA 20.4-23 F-SAND, WELL SORTED, MOIST, DENSE ORANGE BROWN			0 PPM

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

Field Boring Log

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	4' REC		25-29 SAA WET			0 PPM
		30			X	APG-BONEYARD-1-GW@
			E.O.B @ 30'			
		35				
		40				
		45				
		50				
		55				

PVC: 1'

DTW: ~~25.34~~ DC 24.34'

DTB: 28.70'

SAMPLE: APG-Boneyard-1-GW-031121

@ 0910

~~TBRB~~ OR	TEMP	PH	ORP	COND	DO
	14.56	5.37	72	0.103	7.62

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

APG - HELICOPTER - FIRE -

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date: 3/12/21
Project No: 21118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by:		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER	5	0-5 SANDY SILT, MOIST, MED DENSE, BROWN	X		APG-HELICOPTER - FIRE -SO (0-2) @ 1330 0PPM
	5' REC	10	5-10 F-SAND, WELL SORTED WET, MED DENSE, BROWN			0 PPM
	0' REC	15	- DRIVING POINT AND SETTING WELL TO 14' -HEAVING SANDS		X	APG-HELICOPTER-FIRE-GW
		20	E: 0.13 @ 14'			@ 1400
		25				

DTW: 5.24

DTB: 15 1' STICK UP

TURB	TEMP	PH	ORP	CONI	DO
OR	16.30	6.09	232	0.142	~~10.55~~ 1.55

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

APG - BLDG - 2308 - 1

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date: 3/12/21
Project No.: 2118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by:		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-3.5 HAND AUGER	5	0-3.5 SILT / 3B ROCK 3.5-5 SILTY CLAY, MOIST DENSE, BROWN			0 PPM
	5' REC	10	5-10 SAA			0 PPM
	5' REC	15	10-12.8 SAA 12.8-15 F-SAND, WELL SORTED MOIST, MED DENSE, ORANGE BROWN			0 PPM
	3.10' REC	20	15-18.10 F-C SAND SOME F-C COBBLES, ~~POORLY~~ SORTED, MOIST MED DENSE, ORANGE BROWN			0 PPM
	4' REC	25	20-21 SAA 21-21.4 GRAVEL LAYER 21.4-24 F-SAND, WELL SORTED MOIST, MED DENSE ORANGE BROWN			0 PPM

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

Field Boring Log

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	4' REC	30	25-29 SAA			0 ppm
	4' REC	35	30-34 SAA TRACE F-C GRAVEL			0 ppm
	3' REC	40	35-38 SAA			0 ppm
	4' REC	45	40-44 SAA NO FGRAVEL			0 ppm
	3' REC	50	45-48 SAA WET @ 48'			0 ppm
		55	E.O.B @ 50'			

DTW: 47.72

DTB: 50 NO STICK UP

APG-BLDG-2308-1-GW-031221

@ 1000

* INSUFF. WATER FOR READINGS

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

APG-P1-12-1

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date:
Project No.: 2118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by:		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER	5	0-5 SANDY SILT, SOME F-C GRAVEL MOIST, LOOSE, BROWN	X		APG-P1-12-1-SO-(0-2) @ 1300
	2.6' REC	10	5-6 SAA 6-F.6 SILTY SAND, WELL SORTED MOIST, MED DENSE, ORANGE BROWN			0 PPM ↓
	4.5' REC	15	10-14.5 F-SAND, WELL SORTED, WET, MED DENSE, ORANGE BROWN		X	0 PPM ↓
		20	E.OB. @ 15'			APG-P1-12-1-GW @ 1340
		25				

DTW: 7.60

DTB: 15' NO STICK UP

TURB	TEMP	PH	ORP	COND	DO
012	11.28	4.77	222	0.134	5.78

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ARCADIS Design & Consultancy for natural and built assets

Boring ID: APG-PI-MINEFIELD-1

~~APG-MINEFIELD-1~~ (CB)

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date: 3/15/21
Project No.: 02118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by:		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER	5	0-5 SILTY SAND w/ F-C GRAVEL WELL SORTED MOIST MED DENSE BROWN			0 PPM ↓
	4' REC	10	5-9 F-SAND WELL SORTED WET LOOSE, BROWN		x	APG-PI-MINEFIELD-1-GW @ 1515
		15	E.O.B @ 10'			
		20				
		25				

DTW: 8.48

DTB: 10 3' STICK UP

NO READINGS - INSUFF WATER

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

APG - BLDG - 300 - 2

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date: 3/15/21
Project No.: 02118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by: CB		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER	5	0-5 CLAYEY SILT MOIST MED DENSE, BROWN			0 ppm
	5' REC	10	5-9.5 SAA 9.5-10 SANDY CLAY, MED DENSE BROWN			0 ppm
	4.5' REC	15	10-10.6 SAA 10.6-14.5 CLAY MOIST MED DENSE, BROWN			0 ppm
	3.8 REC	20	15-15.6 SAA 15.6-18.8 F-C SAND, POORLY SORTED, WET, MED DENSE, ORANGE BROWN			0 ppm
		25	E.O.B. 20'		X	APG-BLDG-300-2-GW (2)

DTW: 16.67

DTB: 20 NO STICK UP

TURB	TEMP	PH	ORP	COND.	DO
OK	10.17	4.87	175	0.081	6.76

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ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

APG-BLDG-300-1

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date: 3/15/21
Project No.: 02118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by:		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER	5	0-5 CLAYEY SILT, MOIST, MED DENSE, BROWN			0 ppm
	5' REC	10	5-8 SAA 8-10 SANDY CLAY, MOIST, MED DENSE BROWN			0 ppm
	5' REC	10.13.3 15	~~10-15~~ SAA ~~15~~ 13-15 CLAY, MOIST, DENSE GRAY			0 ppm
	2.5' REC	20	15-17.5' F-C SAND, POORLY SORTED, MED DENSE, WET BROWN			0 ppm
	1' REC	25	20-21 SAA	X		0 ppm APG-BLDG-300-1-GW @ 0930

E.O.B @ 25'

DTW: 14.78

DTB: 25 1' STICK UP

TURB	TEMP	pH	ORP	COND	DO
OR	12.42	5.31	202	0.067	2.28

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ARCADIS Design & Consultancy for natural and built assets

Boring ID: APG-EF15-1

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date: 3/16/21
Project No 02118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by: CO		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER		0-2 2A MODIFIED SUB BASE 2- SILTY, MOIST, MEDIUM DENSE BROWN			0 PPM
	3' IDEA	5	5-8 F-SAND WELL SORTED, WET LOOSE, BROWN		X	0 PPM APG-EF15-1-GW (2)
		10	E.O.B @ 9'			1240
		15	DTW: 5.65 DTB: 10' 1' STICK UP			
		20	TURB TEMP PH ORP COND DO OR 8.24 6.02 147 0.606 0.94			
		25				

ARCADIS Design & Consultancy for natural and built assets

Boring ID: APG-BAF-SG-1

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date:
Project No.: 02118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by:		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER	5	0-5 SILT, MOIST, LOOSE, BROWN	X		APG-BAF-SG-1-SO-(0-2) @ 1120 0 PPM
	3' REC	10	5-8 F-SAND, WELL SORTED, WET LOOSE, BROWN/GRAY			0 PPM ↓ X APG-BAF-SG-1-GW @ 1150
		15	E.O.B @ 8'			
		20				
		25				

DTW: 6.56
DTB: 10' 2' STICK UP

TURB	TEMP	PH	ORP	COND	DO
OR	7.63	5.72	188	0.160	7.42

ARCADIS Design & Consultancy for natural and built assets

Boring ID: APG-FUZE-1

Field Boring Log

Client: USAEC
Project No: 02116216.3005.8AC00
Site: Aberdeen Proving Ground
Logged by:
Drilling Co.:
Driller:
Field Location:

Boring ID:
Date: 5/16/24
Latitude:
Longitude:
Ground Surface Elevation:
Drilling Method:
Drill Rig Model:
Soil Sampling Method:
Groundwater Sampling Method:
Hole Diameter:
Total Depth of Boring:
Reference Datum:
Depth to First Encountered Water:

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 MIXED MEK	0	0-5 SILTY CLAY, MOIST - WET @ 5', DENSE, BROWN/GRAY			0 PPM
	2' REF	5	5-7' F-SAND, WELL SORTED, LOOSE WET, CLAY @ 7' BROWN/GRAY			0 PPM
		10	E.O.B. @ 10'		X	APG-FUZE-1-GW @ 1050
		15				
		20				
		25				

DTW: 4.80'
DTB: 10 NO STICK UP

TURB	TEMP	PH	COND	ORP	DO
OR	7.34	5.23	0.225	141	10.48

ARCADIS Design & Consultancy for natural and built assets

Boring ID: APG - AA5 - 1 - GW

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	
Project No: 02118216.3005.8AC00		Latitude:	Date: 3/16/21
Site: Aberdeen Proving Ground		Drilling Method:	Longitude: Ground Surface Elevation:
Logged by: CR		Soil Sampling Method:	Drill Rig Model:
Drilling Co.:		Hole Diameter:	Groundwater Sampling Method:
Driller:		Depth to First Encountered Water:	Total Depth of Boring: Reference Datum:

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER	5	0-5 SILTY CLAY, MOIST WET @ 5', DENSE, BROWN/GRAY			0 PPM ↓
	5' REF	10	5-9 F-SAND, WELL SORTED WET, LOOSE, GRAY			0 PPM ↓
			9-10 SANDY CLAY, MED DENSE MOIST & WET, GRAY			APG-AA5-1-GW @ 0920
		15	E.O.B @ 10'	X		
		20				
		25				

DTW: 6.03

DTB: 10 NO STICK UP

TURB	TEMP	pH	ORP	COND	DO
OR	10.69	5.37	213	0.212	10.38

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ARCADIS Design & Consultancy for natural and built assets

Boring ID: APG-BLDG-ES180-2

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date: 3/17/21
Project No 02118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by: CD		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER		0-3 SILTY CLAY, DRY, DENSE, GRAY/TAN			0 PPM
		5	3-5 SANDY CLAY, DRY, DENSE, GRAY/TAN			↓
	5' REC		5-10 CLAYEY SAND, WELL SORTED, WET MED DENSE, GRAY/TAN			0 ppm
		10			X	APG-BLDG-ES180-2-GW@
			E.O.B. @ 10'			1400
		15				
			DTW:			
			DTB 10' NO STICK UP			
		20	SAMPLE @ 1400			
			INSUFFIC. WATER FOR READINGS			
		25				

ARCADIS Design & Consultancy for natural and built assets

Boring ID: APG-BLDG-E5180-1

Field Boring Log

Client: USAEC	Field Location:	Boring ID: APG-BLDG-E5180-1	Date: 3/17/21
Project No 02118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by:		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER	5	0-5 CLAYEY SILT, MOIST, MED DENSE BROWN	X		APG-BLDG-E5180-1-SO-(0-2)@ 1230 0 PPM
	5' REC	10	5-10 CLAY, DRY, DENSE, GRAY			0 PPM
	4' REC	15	10-13 CLAY SAA 13-14 F-SAND, WELL SORTED, MOIST, MED DENSE, TAN			0 PPM
	4' REC	20	15-19 SAA			0 PPM
	3' REC	25	20-23' SANDY CLAY, MOIST, DENSE, GRAY			0 PPM

PJ 2

5 REC

25

25-27 SAA

27-30 F- SAND, WELL SORTED, MOIST/WET DENSE, GRAYISH TAN

30

E.O.B @ 30'

GW

x APG-BLDG-E5180-6-GW @ 1315

DTW: 15.10

DTB: 30 NO STICK UP

TURB	TEMP	pH	ORP	COND	DO
OR	16.22	4.93	84	0.713	6.62

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ARCADIS Design & Consultancy for natural and built assets

Boring ID: APG-NOBLE-ROAD-1-6W

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date: 3/17/21
Project No 02118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model: 7742 IST
Logged by:		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER	5	0-5 SANDY CLAY WET @ 2' BROWN		X	APG-NOBLE-ROAD-1-6W@
			G: 0.13 6'			1030
		10	DTW: 3.48			
		15	DTB: 6 1.7' STICK UP			
			TIME TEMP. pH ORP COND DO			
		20	OR 9.36 7.50 73 0.247 9.78			
		25				

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ARCADIS Design & Consultancy for natural and built assets

Boring ID: APG-BLDG-E4801-1

Field Boring Log

Client: USAEC	Field Location:	Boring ID: APG-BLDG-E4801-1	Date: 3/17/21
Project No 02118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method: HAND AUGER	Drill Rig Model:
Logged by:		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: 10' Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER	5	0-5 CLAYEY SILT, MOIST, MED DENSE BROWN			0 PPM ↓
		10	5-7.2 CLAY MOIST DENSE GRAY 7.2-10 F-SAND WELL SORTED, MED DENSE WET TAN/GRAY		x	APG-BLDG-E4F01-1-GW@1210
		15	E.O.B @ 10'			
		20	DTW: 6.26 DTB: 10 NO STICK UP			
		25	10.26°C 0.075 mS/cm 6.01 PH >1000 NTU 41 ORP 11.96 mg/L DO			

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ARCADIS Design & Consultancy for natural and built assets

Boring ID: APG-WEIDE-1

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date: 3/17/21
Project No 02118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by: CO		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER		0-5 CLAYEY SILT, MOIST, MED DENSE, BROWN	X		APG-WEIDE-1-SO-(0-2) @ 1100 0 PPM
	5' REC	5	5-7.6 CLAY, MOIST, DENSE, GRAY 7.6-10 F-SAND WELL SORTED, MED DENSE WET TAN			0 PPM
		10			X	APG-WEIDE-1-GW @ 1130
			E.O.B @ 10'			
		15				
			DTW: 6.08 DTB: 10 6" STICK UP			
		20				
			TURB OK (CO) INSUFF. WATER FOR READINGS			
		25				

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

APG-P1-12-2

Field Boring Log

Client: USAEC	Field Location:	Boring ID:	Date: 3/15/21 → 3/16/21
Project No: 2118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by:		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 ~~HAND~~ AUGER AIR KNIFE	5	0-5 AIR KNIFED MIX OF STONES, GRAVEL & SAND	X		APG-P1-12-2-SO-(0-2) @ 1402
	4' REC	10	5-8.5 SANDY SILT W/ F-C GRAVEL, MOIST, MED DENSE BROWN 8.5-9 F-SAND WELL SORTED, MOIST GRAY			0 ppm ↓
	0' REC	15	- HEAVING SANDS - NO REC.		X	APG-P1-12-2-GW @ 1630
			T.D.B @ 15			
		20				
		25				

DTW: 7.55
DTB: 15 NO STICK UP

TURB	TEMP	pH	ORP	Cond	DO
OR	12.68	6.14	74	0.305	7.87

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

Field Boring Log

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	4' REC	30	25-29 F-SAND WELL SORTED MOIST, DENSE, ORANGE BROWN			0 ppm ↓
	4' REC	35	30-34 SAA W/ F-C COBBLES			0 ppm ↓
	3' REC	40	35-38 SAA			0 ppm ↓
	3' REC	45	40-43 SAA WET @ 43			0 ppm ↓
	3' REC	50	45-48 F-SAND, WELL SORTED, WET DENSE, WET, ORANGE BROWN GRAY @ THE BOTTOM		x	0 ppm AB-BLDG2200-1-6048 1250
		55	E.O.B @ 49' DTW: DTB: 49' 1' STICK UP			

x INSUFF WATER FOR REMAINDS

ARCADIS Design & Consultancy for natural and built assets

Boring ID: APG-BLDG-2200-1

Field Boring Log

Client: USAEC	Field Location:	**Boring ID:**	**Date:** 3/18/21
Project No 02118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by:		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 AIR KNIFE	5	0-5 AIR KNIFED, MIX OF GRAVEL, ROCKS & SANDY SILT			SOIL SAMPLE COLLECTED PREVIOUSLY
	5' REC	10	5-10 SANDY CLAY W F-C GRAVEL MOIST DENSE GRAY/BROWN			0 ppm ↓
	4' REC	15	10-14 SAA			0 ppm ↓
	4' REC	20	15-16.9 CLAY; DENSE, MOIST, GRAY 16.9-19 F-C SAND POORLY SORTED MOIST DENSE, ORANGE BROWN			0 ppm ↓
	5' REC	25	20-25 SAA			0 ppm

ARCADIS Design & Consultancy for natural and built assets

Boring ID: APG-CASEY-YARD-1

Field Boring Log

Client: USAEC	Field Location:	**Boring ID:**	**Date:** 3/19/21
Project No 02118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by:		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 AIR KNIFE	5	0-5 AIR KNIFED - NO DESCRIPTION AVAILABE GRAVEL PARKING LOT			—
	5' REC	10	5-10 SANDY CLAY, WELL SORTED WET, MED DENSE, GRAY			0 PPM ▽
	4' REC	15	10-14' F-SAND SOME CLAY, WELL SORTED, WET, MED DENSE, GRAY		X	APG-CASEY-YARD-1-GW @ 1200
		20	E.O.B @ 15' DTW: 6.42 DTB: 15 NO STICK UP			
		25	TURB TEMP pH ORP COND DO 0R 10.82 5.26 157 0.410 0			

Page __ of __

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

APG-6-STREET-1-

Field Boring Log

Client: USAEC	Field Location:	**Boring ID:**	**Date:** 3/15/20
Project No 02118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by:		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.:		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER/ DPT	0	0- SILTY CLAY, GRAVEL, MOIST DENSE, GRAY	X		APG-6-STREET-1-SO-(0-2) @ 1030 0 PPM
	5' REC	5	5-10 CLAY, MOIST, MED DENSE GRAY			0 PPM ↓
	5' REC	10	10-15' SAA WET @ 10'			0 PPM ↓
	4' REC	15	15-17' SAA 17-19 F-SAND, WELL SORTED, DENSE WET, REDDISH BROWN		X	0 PPM APG-6-STREET-1-GW @ 1110
		20	E.O.B @ 19' DTW: 14.00 DTB: 20' 1' STICK UP	TURB OR	TEMP 9.91	pH 4.75 ORP 201 COND 0.112 DO 0
		25				

ARCADIS Design & Consultancy for natural and built assets

Boring ID: AP6-BLK-E4040-1

Field Boring Log

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
		30	DTW: 11 DTB: 25 NO STICK UP		X	AP6-BLK-E4040-1-GW @ 0740
		35	TURB TEMP pH ORP COND DO GR 10.54 5.56 134 0.131 0			
		40				
		45				
		50				
		55				

ARCADIS Design & Consultancy for natural and built assets

Boring ID: ADG-BLDG-E4040-1

ADG-BLDG-E4040-1

Field Boring Log

Client: USAEC	Field Location:	**Boring ID:**	**Date:** 3/19/21
Project No: 02118216.3005.8AC00		Latitude:	Longitude: Ground Surface Elevation:
Site: Aberdeen Proving Ground		Drilling Method:	Drill Rig Model:
Logged by: CO		Soil Sampling Method:	Groundwater Sampling Method:
Drilling Co.: GSI		Hole Diameter:	Total Depth of Boring: Reference Datum:
Driller:		Depth to First Encountered Water:	

Time	Drill Notes	Depth (feet bgs)	Soil/Rock Description (principal components and angularity; minor components and angularity; sorting; moisture content; consistency/density; color; additional comments)	Soil Sample	Groundwater Sample	Sample IDs and Notes
	0-5 HAND AUGER	5	0-4 SILT, MOIST, MED DENSE, BROWN 4-5 F-SAND WELL SORTED MOIST, MED DENSE, ORANGE BROWN	X		ADG-BLDG-E4040-1-SO-(0-2) @ 0900 0 ppm
	5' REC	10	5-7.5 SAA 7.5-8.2 CLAY SEAM 8.2-8.10 F-SAND 8.10-9.5 CLAY SEAM 9.5-10 F-SAND			0 ppm
	5' REC	15	10-15 F-SAND, WELL SORTED, MOIST, DENSE, ORANGE BROWN			0 ppm
	3' REC	20	15-16 SAA 16-18 CLAY MOIST DENSE GRAY			0 ppm
	5' REC	25	20-22 SAA 22-25 F-SAND, WELL SORTED, MED DENSE WET, GRAY			0 ppm

E.O.B @ 25

WIASU 3/2/21

ARCADIS Low-flow Groundwater Purging and Sampling Form

Project No: 92116216.3008.8AC00
Project Name/Location: Aberdeen Proving Ground, MD
Measuring Pt. Description: TOC
TOC Elevation: #N/A
Static Water Level (ft-btoc):
Pump On:
Screen Setting (ft-btoc): #N/A
Total Depth As Built (ft bgs): #N/A
Measured (ft btoc):
Pump Intake (ft-btoc):
Volume Purged (L):
Well ID: APG-FTA-MW07
Personnel: C. Orbidans, M. Blower
Casing Diameter (in.): #N/A
Sample Method: PL ~~Low-Flow~~ GRAB
Purge Method: PL ~~Bladder~~ Bailer
Repair needed? NA
Date: 3/1/21
Weather: Sunny 40's
Well Material: #N/A PVC; #N/A SS
Locked on Arrival? (Y) / N
Locked at Departure? (Y) / N

Water Quality Meter Make/ Model: YSI 600 MPS, Hach 2100 Q. See calibration log for serial numbers.

Stabilization parameters 3 readings

Time (approx. 3-5 minute interval)	Minutes Elapsed	Rate <250 (mL/min)	Depth to Water (Δ not to exceed 0.3 ft or <10% of sat. screen) (ft btoc)	Liters Purged	Temp. (°C) 3%	Conductivity (mS/cm) 3%	Dissolved Oxygen (mg/L) 10%	pH (S.U.) 0.1	ORP (mV) 10 mV	Turbidity (NTU) 10%, w/in 1 NTU if <10	Appearance: Color	Appearance: Odor
			SEE NOTES									

Sample ID: APG-FTA-MW07

	Y	N
MS/MSD:	☐	☑
Duplicate:	☐	☑
Equipment Blank:	☐	☑

Duplicate ID: — Time:
Equipment Blank ID: — Time:

Sample Time: Label 1450; Start —; End/Pump Off —

Pump Settings:

Notes: Bladder pump from PINE contained PFAS, Sample collected via HDPE Bailer GRAB

Constituents sampled	Container:	Number:	Preservative*	Collected?
PFAS Group*	250 ~~500~~ mL HDPE w/ HDPE screw cap	2	–	☐
				☐
				☐
				☐
				☐
			–	☐
				☐
			–	☐

^All bottles should be cooled as soon as possible to ≤ 6°Celsius. * - Includes 18 constituents as prescribed in sampling analysis plan. Total:

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.26; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

Well and Location Information

Condition of Surrounding Area: OK
Condition of Well: OK
Well Completion: #REF!
Well Lock Condition: OK / RST
Well Locked at Departure: (Yes) / No

Completed By: Dale Lyons Date: 3/2/21
Reviewed By: Date:

APG-FTA-MIO-D-1520
3/2/21

ARCADIS

Low-flow Groundwater Purging and Sampling Form

Project No.: 02118216.3008.BAC00
Well ID: APG-FTA-MIO
Date: 3/2/21
Project Name/Location: Aberdeen Proving Ground, MD
Personnel: C. Ortolano, M. Blower
Weather: 40's Sunny
Measuring Pt. Description: TOC
Screen Setting (ft-btoc): #N/A
Casing Diameter (in.): #N/A
Well Material: #N/A PVC, #N/A SS
TOC Elevation: #N/A
Total Depth As Built (ft bgs): #N/A
Sample Method: DL GRAB, Low-Flow
Static Water Level (ft-btoc):
Measured (ft btoc):
Pump Intake (ft-btoc):
Purge Method: DL ~~Bladder~~ Bailer
Locked on Arrival? Y / N
Pump On:
Volume Purged (L):
Repair needed?: NA
Locked at Departure? Y / N
Water Quality Meter Make/ Model: YSI 600 MPS, Hach 2100 Q. See calibration log for serial numbers.

Stabilization parameters ± readings:

Time (approx. 3-5 minute interval)	Minutes Elapsed	Rate <250 (mL/min)	Depth to Water (Δ not to exceed 0.3 ft or <10% of sat. screen) (ft btoc)	Liters Purged	3% Temp. (°C)	3% Conductivity (mS/cm)	10% Dissolved Oxygen (mg/L)	0.1 pH (S.U.)	10 mV ORP (mV)	10%, w/in 1 NTU if <10 Turbidity (NTU)	Appearance Color	Appearance Odor
			NOTES									
		SEE										

Sample ID: APG-FTA-MIO-030221
Sample Time: Label 1520, Start —, End/Pump Off —

	Y	N
MS/MSD:	☐	☑
Duplicate:	☐	☑
Equipment Blank:	☐	☑

Duplicate ID: Time:
Equipment Blank ID: Time:
Pump Settings:

Notes: ~~X~~ Bladder pump supplied by PINE not compatible with PFAS FREE Bladders, GRAB sample using Bailer collected instead

Constituents sampled	Container:	Number:	Preservative*	Collected?
PFAS Group*	250 mL HDPE w/ HDPE screw cap	2	–	☐
				☐
				☐
				☐
				☐
				☐
			–	☐
				☐
			–	☐

*All bottles should be cooled as soon as possible to ≤ 6°Celsius.
* - Includes 18 constituents as prescribed in sampling analysis plan.

Gallons/Foot: 1" = 0.04, 1.25" = 0.06, 1.5" = 0.09, 2" = 0.16, 2.5" = 0.26, 3" = 0.37, 3.5" = 0.50, 4" = 0.65, 6" = 1.47
Total:

Well and Location Information
Condition of Surrounding Area: OK
Condition of Well: OK
Well Completion: #REF!
Well Lock Condition: OK
Well Locked at Departure: (Yes) / No

Completed By: Dale Lynch Date: 3/2/21
Reviewed By: Date:

13.5-28.5 3/9/21

ARCADIS Low-flow Groundwater Purging and Sampling Form

Project No.: 02118216.3005.8AC00 | Well ID: WB-MW-14A-030921 | Date: 3/9/21

Project Name/Location: Aberdeen Proving Ground, MD | Personnel: C. Ortolano, M. Blower | Weather: Sunny 50's

Measuring Pt. Description: TOC | Screen Setting (ft-btoc): #N/A | Casing Diameter (in.): #N/A | Well Material: #N/A PVC, #N/A SS

TOC Elevation: #N/A | Total Depth As Built (ft bgs): #N/A | Sample Method: Low-Flow

Static Water Level (ft-btoc): 16.96 | Measured (ft btoc): 31.16 | Pump Intake (ft-btoc): ~21 | Purge Method: Bladder | Locked on Arrival? (Y) / N

Pump On: 1450 | Volume Purged (L): | Repair needed? N/A | Locked at Departure? (Y) / N

Water Quality Meter Make/ Model: YSI 600 MPS, Hach 2100 Q. See calibration log for serial numbers.

Stabilization parameters 3 readings:

Time (approx. 3-5 minute interval)	Minutes Elapsed	Rate <250 (mL/min)	Depth to Water (Δ not to exceed 0.3 ft or <10% of sat. screen) (ft btoc)	Liters Purged GAL	3% Temp. (°C)	3% Conductivity (mS/cm)	10% Dissolved Oxygen (mg/L)	0.1 pH (S.U.)	10 mV ORP (mV)	10%, w/in 1 NTU if <10 Turbidity (NTU)	Appearance Color	Appearance Odor
1455	5	200	16.97	0.25	17.59	0.070	12.96	5.18	253	17.3	clear	no
1500	10	200	16.98	0.50	17.17	0.070	13.05	5.29	255	13.01		
1505	15	200	16.98	0.75	18.01	0.067	11.69	5.29	262	16.1		
1510	20	200	16.98	1.0	17.92	0.066	11.49	5.21	266	16.0		
1515	25	200	16.98	1.25	18.01	0.064	11.18	5.19	276	16.1		
1520	30	—	SAMPLE									

Sample ID: APG-WB-MW-14A-030921

	Y	N
MS/MSD:	☐	☑
Duplicate:	☐	☑
Equipment Blank:	☐	☑

Duplicate ID: — Time: —

Equipment Blank ID: — Time: —

Sample Time: Label APG-MW-14A-030921

Start 1450

End/Pump Off 1525

Pump Settings:

Notes: ~20.14 GAL (1 VOL)

Constituents sampled	Container:	Number:	Preservative*	Collected?
PFAS Group*	500 mL HDPE w/ HDPE screw cap		–	☐
				☐
				☐
				☐
				☐
			–	☐
				☐
			–	☐

*All bottles should be cooled as soon as possible to ≤ 6°Celsius.

* - Includes 18 constituents as prescribed in sampling analysis plan.

Total:

Gallons/Foot: 1" = 0.04, 1.25" = 0.06, 1.5" = 0.09, 2" = 0.16, 2.5" = 0.28, 3" = 0.37, 3.5" = 0.50, 4" = 0.65, 6" = 1.47

Well and Location Information

Condition of Surrounding Area: OK

Condition of Well: OK

Well Completion: #REF!

Well Lock Condition: OK

Well Locked at Departure: (Yes) / No

Completed By: Dale Lynch Date: 3/9/21 Reviewed By: Date:

3/9/21

ARCADIS

Low-flow Groundwater Purging and Sampling Form

Project No.: 02118216.3005.8AC00
Project Name/Location: Aberdeen Proving Ground, MD
Measuring Pt. Description: TOC
TOC Elevation: #N/A
Static Water Level (ft-btoc): 16.61'
Pump On: 1340
Screen Setting (ft-btoc): #N/A
Total Depth: As Built (ft bgs): #N/A; Measured (ft btoc): 31.60'; Pump Intake (ft-btoc): ~27
Volume Purged (L): 1.25 GAL
Well ID: WB-MW-11A
Personnel: C. Ortolano, M. Blower
Casing Diameter (in.): #N/A
Sample Method: Low-Flow
Purge Method: Bladder
Repair needed? NA
Date: 3/9/21
Weather: Sunny 50's
Well Material: #N/A PVC; #N/A SS
Locked on Arrival? (Y) / N
Locked at Departure? (Y) / N
Water Quality Meter Make/ Model: YSI 600 MPS, Hach 2100 Q. See calibration log for serial numbers.

Stabilization parameters 3 readings:

Time (approx. 3-5 minute interval)	Minutes Elapsed	Rate <250 (mL/min)	Depth to Water (Δ not to exceed 0.3 ft or <10% of sat. screen) (ft btoc)	Liters ~~Purged~~ GAL	3% Temp. (°C)	3% Conductivity (mS/cm)	10% Dissolved Oxygen (mg/L)	0.1 pH (S.U.)	10 mV ORP (mV)	10%, w/in 1 NTU if <10 Turbidity (NTU)	Appearance Color	Appearance Odor
1345	5	200	16.62	0.25	14.75	0.105	14.53	5.11	735	15.3	Clear	ND
1350	10	200	16.61	0.50	14.37	0.081	12.90	5.15	237	12.6	↓	↑
1355	15	200	16.61	0.75	13.46	0.065	11.10	5.10	253	10.7		
1400	20	200	16.61	1.0	13.31	0.065	11.10	~~5.07~~	258	11.0		
1405	25	200	16.61	1.25	13.29	0.065	11.10	5.04	262	11.3	↓	↓
1410	30	—	SAMPLE									

Sample ID: ~~WB-11A~~ WB-MW-11A-030921

	Y	N
MS/MSD:	☐	☑
Duplicate:	☐	☑
Equipment Blank:	☑	☒

Duplicate ID: —
Equipment Blank ID: APG-EB-03-030921
Time: —
Time: 1430

Sample Time: Label 1410; Start 1340; End/Pump Off 1415

Pump Settings:

Notes: DTB = 31.60'
~ 9.74 GAL VOLUME

Constituents sampled PFAS Group*	Container:	Number:	Preservative*	Collected?
	250 ~~500~~ mL HDPE w/ HDPE screw cap	2	–	☑
				☐
				☐
				☐
				☐
			–	☐
				☐
			–	☐

*All bottles should be cooled as soon as possible to ≤ 6°Celsius.
* - Includes 18 constituents as prescribed in sampling analysis plan.

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.26; 3" = 0.37; (3.5" = 0.50; 4" = 0.65); 6" = 1.47

Total:

Well and Location Information

Condition of Surrounding Area: OK
Condition of Well: See map
Well Completion: #REF!
Well Lock Condition: OK
Well Locked at Departure: (Yes) / No

Completed By: DML
Date: 3/9/21
Reviewed By:
Date:

3/11/21

APG-FTA-MO8-031121

23-33'

ARCADIS Low-flow Groundwater Purging and Sampling Form

Project No.: 02118216.3005.8AC00
Project Name/Location: Aberdeen Proving Ground, MD
Measuring Pt. Description: TOC
TOC Elevation: #N/A
Static Water Level (ft-btoc): 29.19
Pump On: 1310
Screen Setting (ft-btoc): #N/A
Total Depth — As Built (ft bgs): #N/A; Measured (ft btoc): 35.62; Pump Intake (ft-btoc): ~28
Volume Purged (L):
Well ID: FTA-MO8
Personnel: C. Ortolano, M. Blower
Casing Diameter (in.): #N/A
Sample Method: Low-Flow
Purge Method: Bladder pump
Repair needed? NO
Date: 3/11/21
Weather: Sunny 60's
Well Material: #N/A PVC; #N/A SS
Locked on Arrival? (Y) / N
Locked at Departure? (Y) / N

Water Quality Meter Make/ Model: YSI 600 MPS, Hach 2100 Q. See calibration log for serial numbers.

Stabilization parameters 3 readings: 3%, 3%, 10%, 0.1, 10 mV, 10%, w/in 1 NTU if <10

Time (approx. 3-5 minute interval)	Minutes Elapsed	Rate <250 (mL/min)	Depth to Water (Δ not to exceed 0.3 ft or <10% of sat. screen) (ft btoc)	Liters Purged	Temp. (°C)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	ORP (mV)	Turbidity (NTU)	Appearance: Color	Appearance: Odor
1315	5	200	29.17	0.25	19.25	0.079	9.87	5.44	307	39.6	clear	MD
1320	10	200	29.17	0.50	17.73	0.067	10.19	5.49	291	41.0		
1325	15	200	29.17	0.75	16.79	0.052	10.07	5.67	289	30.9		
1330	20	200	29.17	1.0	16.62	0.049	10.07	5.68	292	27.0		
1335	25	200	29.17	1.25	16.51	0.081	10.11	5.94	281	20.5		
1340	30	200	29.17	1.50	16.14	0.086	10.17	5.90	283	19.60		
1345	35		SAMPLE									

Sample ID: APG-FTA-MO8-031121
Sample Time: Label D 1345; Start 1310; End/Pump Off 1350
MS/MSD: Y ☑ N ☐
Duplicate: Y ☐ N ☐
Equipment Blank: Y ☐ N ☐
Duplicate ID: APG-DUP-04-031121 Time: 1200
Equipment Blank ID: Time:
Pump Settings: ~28'

Notes: Horiba calibration issues (pH)

Constituents sampled	Container:	Number:	Preservative*	Collected?
PFAS Group*	250 mL HDPE w/ HDPE screw cap	2	-	☑
				☐
				☐
				☐
				☐
			-	☐
				☐
			-	☐

Total:

^All bottles should be cooled as soon as possible to ≤ 6°Celsius.
* - includes 18 constituents as prescribed in sampling analysis plan.

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.26; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

Well and Location Information
Condition of Surrounding Area: OK
Condition of Well: See map/pic
Well Completion: #REF!
Well Lock Condition: ✓ Yes
Well Locked at Departure: (Yes) / No

Completed By: DML Date: 3/11/21 Reviewed By: Date:

ARCADIS

Low-flow Groundwater Purging and Sampling Form

Project No.: 30001795
Project Name/Location: APG PFASS1 / ABERDEEN, MD
Well ID: APG-E3-1-GW
Personnel: J. COFFEY
Date: 12/16/21
Weather: 48°F CLEAR
Well Material: X PVC ____ SS

Measuring Pt. Description: TOC
Screen Setting (feet bloc): 5'-15'
Casing Diameter (inches): 3/4"
TOC Elevation: UNK
Total Depth As Built (feet bgs): 15'
Total Depth Measured (feet bloc): 15'
Sample Method: Low-Flow
Static Water Level (feet bloc): 8.12'
Pump Intake (feet bloc): ~10'
Purge Method: PERISTALTIC
Pump On: 0916
Volume Purged (liters): 6

Water Quality Meter Make/ Model: See calibration sheet

Stabilization parameters 3 readings:

Time (approx. 3- to 5-minute interval)	Minutes Elapsed	Rate <250 (mL/min)	Depth to Water (Δ not to exceed 0.3 foot <10% of scr. screen) (feet bloc)	Liters Purged	3% Temp. (°C)	3% Conductivity (mS/cm)	10% Dissolved Oxygen (mg/L)	0.1 pH (S.U.)	10 mV ORP (mV)	10% w/in 1 NTU if <10 Turbidity (NTU)	Appearance Color	Appearance Odor
0920	4	200	NM	.8	14.38	0.089	13.02	5.69	103	OVER	BROWN	HOPE
0925	9	200	NM	1.8	15.03	0.087	8.25	5.78	62	OVER	"	"
0930	14	200	NM	2.8	15.01	0.085	7.68	5.81	49	"	"	"
0935	19	200	NM	3.8	15.65	0.085	6.77	5.72	58	"	"	"
0940	24	200	NM	4.8	15.47	0.084	3.76	5.70	64	"	"	"
0945	- SAMPLED APG-E3-1-GW-121621											

12/16/21

Sample ID: APG-E3-1-GW-121621

	Y	N
MS/MSD:	☐	☑
Duplicate:	☐	☑
Equipment Blank:	☐	☑

Duplicate ID: NA Time: NA
Equipment Blank ID: NA Time: NA

Sample Time: Label 0945
Start 0943
End/Pump Off 0946

Pump Settings: PERISTALTIC (50%)

Notes:

Constituents sampled	Container:	Number:	Preservative*	Collected?
PFAS Group*	250 mL HDPE		-	☑
				☐
				☐
				☐
				☐
				☐
				☐
				☐

^All bottles should be cooled as soon as possible to ≤ 6°Celsius.
* - Includes 18 constituents as prescribed in sampling analysis plan.
Total:

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.26; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

Well and Location Information

Condition of Surrounding Area: NA
Condition of Well: NA
Well Completion: NA
Well Lock Condition: NA
Well Locked at Departure: Yes / No / NA

ARCADIS

Low-flow Groundwater Purging and Sampling Form

Project No. 30001975 | Well ID: APG-E4-1-GW | Date: 12/16/21

Project Name/Location: APG-PFAS SI / ABERDEEN, MD | Personnel: J. COFFEY | Weather: 46°F CLEAR

Measuring Pt. Description: TOC | Screen Setting (feet bloc): 5'-10' | Casing Diameter (inches): 3/4" | Well Material: X PVC ___ SS

TOC Elevation: UNK | Total Depth As Built (feet bgs): 15' | Sample Method: Low-Flow

Static Water Level (feet bloc): 9.78' | Measured (feet bloc): 15' | Pump Intake (feet bloc): ~10' | Purge Method: PERISTALTIC

Pump On: 0949 | Volume Purged (liters): 6

Water Quality Meter Make/ Model: See calibration sheet

Stabilization parameters 3 readings:

Time (approx. 3- to 5-minute interval)	Minutes Elapsed	Rate <250 (mL/min)	Depth to Water (Δ not to exceed 0.3 feet <10% of est. screen) (feet bloc)	Liters Purged	Temp. (°C) 3%	Conductivity (mS/cm) 3%	Dissolved Oxygen (mg/L) 10%	pH (S.U.) 0.1	ORP (mV) 10 mV	Turbidity (NTU) 10% w/in 1 NTU if <10	Appearance Color	Appearance Odor
0953	0											
0733	4	200	NM	1	14.39	0.095	3.37	5.54	138	OVER	BROWN	NONE
0758	9	200	NM	1.8	15.02	0.072	4.20	5.35	66	"	"	"
0803	14	200	NM	2.8	15.16	0.068	4.65	5.69	56	939	CLEAR	NONE
0808	19	200	NM	3.8	14.75	0.066	4.58	5.68	44	197	"	"
0813	24	200	NM	4.8	14.43	0.066	4.83	5.72	33	387	"	"
0815	– SAMPLED APG-E4-1-GW-121621											

12/16/21

Sample ID: APG-E4-1-GW-121621

	Y	N
MS/MSD:	☐	☑
Duplicate:	☐	☑
Equipment Blank:	☐	☑

Duplicate ID: NA Time: NA

Equipment Blank ID: NA Time: NA

Sample Time: Label 0815

Start

End/Pump Off

Pump Settings: PERISTALTIC 70% (NINE BATTERY)

Notes:

Constituents sampled	Container:	Number:	Preservative*	Collected?
PFAS Group*	250 mL HDPE		–	☑
				☐
				☐
				☐
				☐
				☐
				☐
				☐
				☐

Total:

*All bottles should be cooled as soon as possible to ≤ 6°Celsius. * - Includes 18 constituents as prescribed in sampling analysis plan.

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.26; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

Well and Location Information

Condition of Surrounding Area: NA

Condition of Well: NA

Well Completion: NA

Well Lock Condition: NA

Well Locked at Departure: Yes / No / NA

ARCADIS

Low-flow Groundwater Purging and Sampling Form

Project No. 30001795 | Well ID: APG-ATC1-1-GW | Date: 12/15/21

Project Name/Location: APG-PFAS SAMPLING / ABERDEEN, MD | Personnel: J. COFFEY | Weather: 53°F CLEAR

Measuring Pt. Description: TOC | Screen Setting (feet bloc): 16'-20' | Casing Diameter (inches): 3/4" | Well Material: X PVC ___ SS

TOC Elevation: UNK | Total Depth As Built (feet bgs): 20' | Sample Method: Low-Flow

Static Water Level (feet bloc): 17.13 | Measured (feet bloc): ___ | Pump Intake (feet bloc): ~17.5' | Purge Method: PERISTALTIC

Pump On: 1330 | Volume Purged (liters): ___

Water Quality Meter Make/ Model: See calibration sheet

Stabilization parameters 3 readings:

Time (approx. 3- to 5-minute interval)	Minutes Elapsed	Rate <250 (mL/min)	Depth to Water (Δ not to exceed 0.3 foot <10% of est. screen) (feet bloc)	Liters Purged	3% Temp. (°C)	3% Conductivity (mS/cm)	10% Dissolved Oxygen (mg/L)	0.1 pH (S.U.)	10 mV ORP (mV)	10%, w/in 1 NTU if <10 Turbidity (NTU)	Appearance Color	Appearance Odor
1335	5	200	NM	1	14.98	0.059	2.96	5.45	180	OVER	BROWN	NONE
1340	10	200	NM	2	15.64	0.057	2.42	5.28	105	584	"	"
1345	15	200	NM	3	15.95	0.055	2.28	5.30	94	241	CLEAR	"
1350	20	200	NM	4	16.39	0.053	2.20	5.32	85	202	"	"
1355	25	200	NM	5	16.47	0.053	2.12	5.32	86	180	"	"
1400	— SAMPLED APG-ATC1-1-GW-121521 —											

12/15/21

Sample ID: APG-ATC1-1-GW-121521

	Y	N
MS/MSD:	☑	☐
Duplicate:	☐	☑
Equipment Blank:	☐	☑

Duplicate ID: NA Time: NA

Equipment Blank ID: NA Time: NA

Sample Time: Label ___ Start ___ End/Pump Off ___

Pump Settings: PERISTALTIC 50%

Notes: * MS/MSD *

Constituents sampled	Container:	Number:	Preservative*	Collected?
PFAS Group*	250 mL HDPE	6	-	☑
				☐
				☐
				☐
				☐
				☐
				☐
				☐

X6 MS/MSD

12/15/21

*All bottles should be cooled as soon as possible to ≤ 6°Celsius. * - Includes 18 constituents as prescribed in sampling analysis plan. Total:

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.25; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

Well and Location Information

Condition of Surrounding Area: NA | Well Lock Condition: NA

Condition of Well: NA | Well Locked at Departure: Yes / No / NA

Well Completion: NA

ARCADIS

Low-flow Groundwater Purging and Sampling Form

Project No. 30001975 | Well ID: APG-ATC2-1-GW | Date: 12/15/21

Project Name/Location: APG PFAS SAMPLING / ABERDEEN | Personnel: J. COFFEY | Weather: SUNNY CLEAR

Measuring Pt. Description: TOC | Screen Setting (feet btoc): 4'-9' | Casing Diameter (inches): 3/4" | Well Material: X PVC ___ SS

TOC Elevation: UNK | Total Depth As Built (feet bgs): 9' | Sample Method: Low-Flow

Static Water Level (feet btoc): 3.83' | Measured (feet btoc): | Pump Intake (feet btoc): ~5' | Purge Method: PERISTALTIC

Pump On: 1204 | Volume Purged (liters): 5

Water Quality Meter Make/ Model: See calibration sheet

Stabilization parameters 3 readings:

Time (approx. 3- to 5-minute interval)	Minutes Elapsed	Rate <250 (mL/min)	Depth to Water (Δ not to exceed 0.3 foot <10% of sat. screen) (feet btoc)	Liters Purged	3% Temp. (°C)	3% Conductivity (mS/cm)	10% Dissolved Oxygen (mg/L)	0.1 pH (S.U.)	10 mV ORP (mV)	10%, w/in 1 NTU if <10 Turbidity (NTU)	Appearance Color	Appearance Odor
1206	2	200	NM	.2	12.67	0.040	5.21	5.20	211	OVER	BROWN	NONE
1211	5	200	NM	1.2	12.44	0.040	2.09	5.16	215	"	"	"
1216	12	200	NM	2.2	12.27	0.039	1.65	5.09	219	"	"	"
1221	17	200	NM	3.2	12.35	0.039	1.51	5.09	219	"	"	"
1226	22	200	NM	4.2	12.43	0.039	1.27	5.09	219	"	"	"
1230	– SAMPLED APG-ATC2-1-GW-121521											

12/15/21

Sample ID: APG-ATC2-1-GW-121521

	Y	N
MS/MSD:	☐	☑
Duplicate:	☑	☐
Equipment Blank:	☐	☑

Sample Time: Label 1230 | Start 1228 | End/Pump Off 1232

Duplicate ID: APG-FD-1-GW-121521 Time: —

Equipment Blank ID: NA Time: NA

Pump Settings: PERISTALTIC 50%

Notes: ★ DUPLICATE SAMPLE ★

X2

Constituents sampled PFAS Group*	Container: 250 mL HDPE	Number: 2	Preservative* –	Collected? ☑
				☐
				☐
				☐
				☐
				☐
				☐
				☐
				☐

12/15/21

*All bottles should be cooled as soon as possible to ≤ 6°Celsius. * - Includes 18 constituents as prescribed in sampling analysis plan. Total:

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.25; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

Well and Location Information

Condition of Surrounding Area: NA

Condition of Well: NA

Well Completion: NA

Well Lock Condition: NA

Well Locked at Departure: Yes / No / NA

ARCADIS

Low-flow Groundwater Purging and Sampling Form

Project No. 30001975
Project Name/Location: APG / ABERDEEN, MD
Well ID: APG-SB-1-GW
Date: 12/15/21
Personnel: J. COFFEY
Weather: 44°F CLEAR
Measuring Pt. Description: TOC
TOC Elevation: UNK
Screen Setting (feet btoc): 5'-15'
Casing Diameter (inches): 3/4"
Well Material: X PVC ___ SS
Total Depth As Built (feet bgs): 15'
Static Water Level (feet btoc): 7.62
Measured (feet btoc): 0.48'
Pump Intake (feet btoc): ~10'
Sample Method: Low-Flow
Pump On: 0915
Volume Purged (liters): ___
Purge Method: PERISTALTIC
Water Quality Meter Make/ Model: See calibration sheet

Stabilization parameters 3 readings:

Time (approx. 3- to 5-minute interval)	Minutes Elapsed	Rate <250 (mL/min)	Depth to Water (A not to exceed 0.3 foot <10% of sat. screen) (feet btoc)	Liters Purged	3% Temp. (°C)	3% Conductivity (mS/cm)	10% Dissolved Oxygen (mg/L)	0.1 pH (S.U.)	10 mV ORP (mV)	10%, w/in 1 NTU if <10 Turbidity (NTU) > 1000	Appearance Color	Appearance Odor
0920	5	200	NM	1	12.71	0.100	0.93	5.62	81	OVER	BROWN	NONE
0925	10	200	NM	2	13.88	0.098	1.32	5.73	26	"	"	"
0930	15	200	NM	3	14.37	0.100	2.09	5.73	4	"	"	"
0935	20	200	NM	4	15.46	0.104	2.37	5.76	-1	"	"	"
0940	25	200	NM	5	15.57	0.105	2.30	5.74	3	849	"	"
0945	– SAMPLED APG-SB-1-GW-121521											

12/15/21

Sample ID: APG-SB-1-GW-121521

	Y	N
MS/MSD:	☐	☑
Duplicate:	☐	☑
Equipment Blank:	☐	☑

Duplicate ID: NA Time: ___
Equipment Blank ID: NA Time: ___

Sample Time: Label 0945
Start 0942
End/Pump Off 0946

Pump Settings: PERISTALTIC PUMP 50%

Notes: ___

Constituents sampled	Container:	Number:	Preservative*	Collected?
PFAS Group*	250 mL HDPE	2	-	☐
				☐
				☐
				☐
				☐
				☐
				☐
				☐
				☐

12/15/21

^All bottles should be cooled as soon as possible to ≤ 6°Celsius. * - Includes 18 constituents as prescribed in sampling analysis plan. Total:

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.25; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

Well and Location Information

Condition of Surrounding Area: ___
Well Lock Condition: NA
Condition of Well: NA
Well Locked at Departure: Yes / No
Well Completion: NA

ARCADIS

Low-flow Groundwater Purging and Sampling Form

Project No. 30001795 | Well ID: APG-SIA-1-GW | Date: 12/15/21

Project Name/Location: APG-PFAS SAMPLING/ABERDEEN | Personnel: J. COFFEY | Weather: 47°F CLEAR

Measuring Pt. Description: TOC | Screen Setting (feet btoc): 5'-15' | Casing Diameter (inches): 3/4" | Well Material: X PVC ___ SS

TOC Elevation: UNK | Total Depth As Built (feet bgs): 15' | Sample Method: Low-Flow

Static Water Level (feet btoc): 12.42 | Measured (feet btoc): ___ | Pump Intake (feet btoc): ~ 12.5' | Purge Method: PERISTALTIC

Pump On: 1034 | Volume Purged (liters): ___

Water Quality Meter Make/ Model: See calibration sheet

Stabilization parameters 3 readings: | 3% | 3% | 10% | 0.1 | 10 mV | 10%, w/in 1 NTU if <10

Time (approx. 3- to 5-minute interval)	Minutes Elapsed	Rate <250 (mL/min)	Depth to Water (A not to exceed 0.3 feet <10% of set. screen) (feet btoc)	Liters Purged	Temp. (°C)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	ORP (mV)	Turbidity (NTU)	Appearance: Color	Appearance: Odor
1037	3	200	NM	3.6	16.43	0.056	7.15	5.51	132	979	BROWN	MODE
1042	8	200	NM	1.6	16.45	0.054	6.89	5.29	137	341	"	
1047	13	200	NM	2.6	16.47	0.052	6.79	5.31	140	23.6	CLEAR	"
1052	18	200	NM	3.6	16.52	0.051	6.76	5.29	142	15.9	"	"
1057	23	200	NM	4.6	16.47	0.051	6.67	5.26	143	9.8	"	"
1100	— SAMPLED APG-SIA-1-GW-121521 —											

12/15/21

Sample ID: APG-SIA-1-GW-121521

	Y	N
MS/MSD:	☐	☑
Duplicate:	☐	☑
Equipment Blank:	☐	☑

Duplicate ID: NA | Time: NA

Equipment Blank ID: NA | Time: NA

Sample Time: Label GHC 1058 1100 | Start 1058 | End/Pump Off 1101

Pump Settings: PERISTALTIC 50%

Notes: ___

Constituents sampled	Container:	Number:	Preservative^	Collected?
PFAS Group*	250 mL HDPE		-	☑
				☐
				☐
				☐
				☐
				☐
				☐
				☐
				☐

12/15/21

^All bottles should be cooled as soon as possible to ≤ 6°Celsius. * - Includes 18 constituents as prescribed in sampling analysis plan. Total:

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.25; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

Well and Location Information

Condition of Surrounding Area: ___ | Well Lock Condition: ___

Condition of Well: ___ | Well Locked at Departure: Yes / No

Well Completion:

ARCADIS Design & Consultancy for natural and built assets

Page _____

Boring ID: _____

Borehole Soil and Groundwater Sampling Summary

Boring ID:
Drilling Method:
Soil Sampling Method:
Groundwater Sampling Method:

Installation: Aberdeen Proving Ground, MD
Site Name:
Project Number: 02118216.3005.8AC00
Sampling Personnel: C. Ortolano, M. Blower

Sample ID	Date	Time	Media (SO,GW)	Sampling Depth (ft bgs)	Analytes (mark with X)				Sample Type (mark with X)				
					PFAS	TOC	Grain Size	pH	Normal	FD	MS/MSD	EB	SB
APG-BAF-A1-1-SO (030221)	3/2/21	1105	SO	0-2	X	X	X	X	X				
APG-BAF-A1-1-GW (030221)	3/2/21	1300	GW	32.5	X				X				
APG-BAF-A1-2-SO (030221)	3/2/21	1325	SO	0-2	X				X				
APG-BAF-A1-2-GW (030221)	3/2/21	1415	GW	34.5	X				X				
APG-BAF-B-1-SO-(0-2)	3/2/21	1500	SO	0-2	X	X	X	X	X				
APG-BAF-D-1-SO-(0-2)	3/3/21	0915	SO	0-2	X	X	X	X	X				
APG-BAF-D-1-GW	3/3/21	1000	GW	29	X				X				
APG-BAF-E-1-SO-(0-2)	3/3/21	1030	SO	0-2	X	X	X	X	X				
APG-BAF-E-1-GW	3/3/21	1115	GW	29	X				X				
APG-BLDG-1059-1-SO-(0-2)	3/3/21	1200	SO	0-2	X	X	X	X	X				
APG-BLDG-1059-1-GW	3/3/21	1230	GW	34	X				X				
APG-BLDG-1065-1-SO-(0-2)	3/3/21	1320	SO	0-2	X	X	X	X	X				
APG-BLDG-1065-1-GW	3/3/21	1400	GW		X				X				

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Page [redacted]

Boring ID: _____

Borehole Soil and Groundwater Sampling Summary

Boring ID:
Drilling Method:
Soil Sampling Method:
Groundwater Sampling Method:

Installation: Aberdeen Proving Ground, MD
Site Name:
Project Number: 02118216.3005.8AC00
Sampling Personnel: C. Ortolano, M. Blower

Sample ID	Date	Time	Media (SO,GW)	Sampling Depth (ft bgs)	Analytes (mark with X)				Sample Type (mark with X)				
					PFAS	TOC	Grain Size	pH	Normal	FD	MS/MSD	EB	SB
APG-LOADING-PAD-1-SO-(0-2)	3/4/21	0900	SO	0-2	X	X	X	X	X				
APG-LOADING-PAD-1-GW	3/4/21	0950	GW	33	X				X				
APG-HANGAR-1060-1-SO-(0-2)	3/4/21	1040	SO	0-2	X	X	X	X	X				
APG-HANGAR-1060-1-GW	3/4/21	1130	GW	34	X								
APG-MFRI-1-SO-(8-10)	3/4/21	1215	SO	8-10	X					X	X		
APG-MFRI-1-GW	3/4/21	1300	GW	38	X				X				
APG-MFRI-2-SO-(8-10)	3/4/21	1400	SO	8-10	X	X	X	X					
APG-MFRI-2-GW	3/4/21	1430	GW	35'	X				X				

ARCADIS Design & Consultancy for natural and built assets

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Boring ID: _____

Borehole Soil and Groundwater Sampling Summary

Boring ID:
Drilling Method:
Soil Sampling Method:
Groundwater Sampling Method:

Installation: Aberdeen Proving Ground, MD
Site Name:
Project Number: 02118216.3005.8AC00
Sampling Personnel: C. Ortolano, M. Blower

Sample ID	Date	Time	Media (SO,GW)	Sampling Depth (ft bgs)	Analytes (mark with X)				Sample Type (mark with X)				
					PFAS	TOC	Grain Size	pH	Normal	FD	MS/MSD	EB	SB
APG-ABR6-1-GW-030521	3/5/21	0930	GW	29	X				X				
APG-ABR7-1-SO-(0-2)	3/5/21	1030	SO	0-2	X	X	X	X	X				
APG-ABR6-1-SO-(0-2)	3/5/21	0915	SO	0-2	X	X	X	X	X				
APG-ABR6-2-SO-(0-2)	3/5/21	1000	SO	0-2	X	~~X~~	~~X~~	(X)	X				
APG-ABR7-1-SO-(0-2)	3/5/21	1030	SO	0-2	X	X	X	X	X				
APG-ABR7-1-GW	3/5/21	1345	GW	24	X	→							

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Page _____

Boring ID: _____

Borehole Soil and Groundwater Sampling Summary

Boring ID:
Drilling Method:
Soil Sampling Method:
Groundwater Sampling Method:

Installation: Aberdeen Proving Ground, MD
Site Name:
Project Number: 02118216.3005.8AC00
Sampling Personnel: C. Ortolano, M. Blower

Sample ID	Date	Time	Media (SO,GW)	Sampling Depth (ft bgs)	Analytes (mark with X)				Sample Type (mark with X)				
					PFAS	TOC	Grain Size	pH	Normal	FD	MS/MSD	EB	SB
APG - ABRD - 1 - SO - (0-2)	3/8/21	0830	SO	0-2	X	X	X	X	X				
APG - ABRD - 1 - GW	3/8/21	0830	GW	24	X				X				
APG - BONEYARD - 5 - SO - (0-2)	3/8/21	1000	SO	0-2	X		(X)	X	X				
APG - BONEYARD - 5 - GW	3/8/21	1035	GW	24	X				X				
APG - BONEYARD - 2 - SO - (0-2)	3/8/21	1110	SO	0-2	X				X				
APG - BONEYARD - 2 - GW	3/8/21	1140	GW	24	X				X				
APG - BONEYARD - 3 - SO - (0-2)	3/8/21	1210	SO	0-2	X				X				
APG - BONEYARD - 3 - GW	3/8/21	1250	GW	24	X				X				
APG - BONEYARD - 4 - SO - (0-2)	3/8/21	1330	SO	0-2	X				X				
APG - BONEYARD - 4 - GW	3/8/21	1415	GW	27	X				X				

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Borehole Soil and Groundwater Sampling Summary

Boring ID:
Drilling Method:
Soil Sampling Method:
Groundwater Sampling Method:

Installation: Aberdeen Proving Ground, MD
Site Name:
Project Number: 02118216.3005.8AC00
Sampling Personnel: C. Ortolano, M. Blower

Sample ID	Date	Time	Media (SO,GW)	Sampling Depth (ft bgs)	Analytes (mark with X)				Sample Type (mark with X)				
					PFAS	TOC	Grain Size	pH	Normal	FD	MS/MSD	EB	SB
APG-BONEYARD-1-SO-(0-2)	3/11/21	0830	SO	0-2	X	X	X	X	X				
APG-BONEYARD-1-GW	3/11/21	0910	GW	28	X		(X)		X				
APG-BONEYARD-7-SO-(0-2)	3/11/21	0930	SO	0-2	X	~~X~~	X	~~X~~	~~X~~ X				
APG-BONEYARD-7-GW	3/11/21	1010	GW	19	X				X				
APG-BONEYARD-6-SO-(0-2)	3/11/21	1045	SO	0-2	X				X				
APG-BONEYARD-6-GW	3/11/21	1120	GW	18	X				X				
APG-OLD-FTA-1-SO-(0-2)	3/11/21	1230	SO	0-2	X	X	X	X	X				
APG-OLD-FTA-1-GW	3/11/21	1310	GW	33	X				X				
APG-OLD-FTA-2-SO-(0-2)	3/11/21	1325	SO	0-2	X				X				
APG-OLD-FTA-2-GW	3/11/21	1410	GW	33	X				X				
APG-FTA-MW08	3/11/21	1345	GW	28	X				1	X	X		

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Page _____

Boring ID: _____

Borehole Soil and Groundwater Sampling Summary

Boring ID:
Drilling Method:
Soil Sampling Method:
Groundwater Sampling Method:

Installation: Aberdeen Proving Ground, MD
Site Name:
Project Number: 02118216.3005.8AC00
Sampling Personnel: C. Ortolano, M. Blower

Sample ID	Date	Time	Media (SO,GW)	Sampling Depth (ft bgs)	Analytes (mark with X)				Sample Type (mark with X)				
					PFAS	TOC	Grain Size	pH	Normal	FD	MS/MSD	EB	SB
APG-BLDG-2308-1-GW	3/12/21	1000	GW	50	X				X				
APG-HELICOPTER-FIRE-SO-(0-2)	3/12/21	1330	SO	0-2	X	X	X	X	X				
APG-HELICOPTER-FIRE-GW	3/12/21	1400	GW	14	X				X				

ARCADIS Design & Consultancy for natural and built assets

Page _____

Boring ID: _____

Borehole Soil and Groundwater Sampling Summary

Boring ID:
Drilling Method:
Soil Sampling Method:
Groundwater Sampling Method:

Installation: Aberdeen Proving Ground, MD
Site Name:
Project Number: 02118216.3005.8AC00
Sampling Personnel: C. Ortolano, M. Blower

Sample ID	Date	Time	Media (SO,GW)	Sampling Depth (ft bgs)	Analytes (mark with X)				Sample Type (mark with X)				
					PFAS	TOC	Grain Size	pH	Normal	FD	MS/MSD	EB	SB
APG-BLDG-300-1-GW	3/15/21	0930	GW	24	X				X				
APG-BLDG-300-2-GW	3/15/21	1040	GW	20	X				X				
APG-BLDG-300-1-SO-(0-2)		1045	SO	0-2	X	X	X	X	X				
APG-BLDG-300-2-SO-(0-2)		1100	SO	0-2	X				X				
APG-PI-12-1-SO-(0-2)		1300	SO	0-2	X	X	X	X	X				
APG-PI-12-2-SO-(0-2)		1400	SO	0-2	X				X				
APG-PI-12-1-GW		1340	GW	15	X				X				
APG-PI-12-2-GW	NOT SAMPLED	—											
APG-PI-MINEFIELD-1	3/15/21	1515	GW	8	X				X				
APG-PI-MINEFIELD-1-SO-(0-2)		1505	SO	0-2	X	X	X	X	X				
APG-PI-MINEFIELD-2-SO-(0-2)		1515	SO	0-2	X				/				

ARCADIS Design & Consultancy for natural and built assets

Page _____

Boring ID: _____

Borehole Soil and Groundwater Sampling Summary

Boring ID:
Drilling Method:
Soil Sampling Method:
Groundwater Sampling Method:

Installation: Aberdeen Proving Ground, MD
Site Name:
Project Number: 02118216.3005.8AC00
Sampling Personnel: C. Ortolano, M. Blower

Sample ID	Date	Time	Media (SO,GW)	Sampling Depth (ft bgs)	Analytes (mark with X)				Sample Type (mark with X)				
					PFAS	TOC	Grain Size	pH	Normal	FD	MS/MSD	EB	SB
APG-AA5-1-GW	3/16/21	0920	GW	10	X				+				
APG-AA5-1-SE		0900	SE	0-10 cm	X					X	X		
APG-FUZE-1-SW		1040	SW	—	X					X	X		
DUP-06 (FUZE-1 SW)		1040	SW	—	X								
APG-FUZE-1-SE		1030	SE	0-10 cm	X				X				
APG-FUZE-1-GW		1050	GW	10'	X				X				
APG-BAE-SG-1-SO-(0-2)		1120	SO	0-2	X	X	X	X	X				
APG-BAE-SG-1-GW		1150	GW	8	X				X				
APG-CF15-1-GW		1240	GW	9	X				X				

ARCADIS Design & Consultancy for natural and built assets

Borehole Soil and Groundwater Sampling Summary

Boring ID:
Drilling Method:
Soil Sampling Method:
Groundwater Sampling Method:

Installation: Aberdeen Proving Ground, MD
Site Name:
Project Number: 02118216.3005.8AC00
Sampling Personnel: C. Ortolano, M. Blower

Sample ID	Date	Time	Media (SO,GW)	Sampling Depth (ft bgs)	Analytes (mark with X)				Sample Type (mark with X)				
					PFAS	TOC	Grain Size	pH	Normal	FD	MS/MSD	EB	SB
APG-NOBLE-ROAD-1-GW	3/11/21	1030	GW	6	X					X	X		
APG-WEIDE-1-SO-(0-2)		1100	SO	0-2	X	X	X	X	X				
APG-WEIDE-1-GW		1130	GW	10	X				X				
APG-BLDG-E4501-1-GW		1210	GW	10	X				X				
APG-BLDG-E5780-1-SO-(0-2)		1230	SO	0-2	X	X	X	X	X				
APG-BLDG-E5180-1-GW		1315	GW	30	X				X				
APG-BLDG-E5180-2-GW		1400	GW	10	X				X				

ARCADIS Design & Consultancy for natural and built assets

Borehole Soil and Groundwater Sampling Summary

Boring ID:
Drilling Method:
Soil Sampling Method:
Groundwater Sampling Method:

Installation: Aberdeen Proving Ground, MD
Site Name:
Project Number: 02118216.3005.8AC00
Sampling Personnel: C. Ortolano, M. Blower

Sample ID	Date	Time	Media (SO,GW)	Sampling Depth (ft bgs)	Analytes (mark with X)				Sample Type (mark with X)				
					PFAS	TOC	Grain Size	pH	Normal	FD	MS/MSD	EB	SB
APG-P1-12-2-GW	3/18/21	1030	GW	15	X					X	X		
APG-BLDG-2200-1-GW	3/18/21	1250	GW	49	X				X				

ARCADIS Design & Consultancy for natural and built assets

Boring ID: _____

Borehole Soil and Groundwater Sampling Summary

Boring ID:
Drilling Method:
Soil Sampling Method:
Groundwater Sampling Method:

Installation: Aberdeen Proving Ground, MD
Site Name:
Project Number: 02118216.3005.8AC00
Sampling Personnel: C. Ortolano, M. Blower

Sample ID	Date	Time	Media (SO,GW)	Sampling Depth (ft bgs)	Analytes (mark with X)				Sample Type (mark with X)				
					PFAS	TOC	Grain Size	pH	Normal	FD	MS/MSD	EB	SB
APG-BLDG-E4040-SO-(0-2)	5/19/21	0900	SO	0-2	✓	✓	✓	✓	✓				
APG-BLDG-E4040-GW		0940	GW	25	X				X				
APG-C-STREET-1-SO-(0-2)		1030	SO	0-2	X	X	X	X	X				
APG-C-STREET-1-GW		1110	GW	19	X				X				
APG-CASEY-YARD-1-GW		1200	GW										

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss those methods to control the hazards that will be implemented for the day): Review the HASP, applicable JSAs, and other control processes. Discuss and document any additional control processes.

- [x] **STOP WORK AUTHORITY** (Must be addressed in every Tailgate meeting - (*See statements below*)
- [ ] Elimination
- [ ] Engineering controls
- [ ] General PPE Usage
- [ ] Personal Hygiene
- [ ] Emergency Action Plan (EAP)
- [ ] JSA to be developed/used ***(specify)***
- [ ] Substitution
- [ ] Administrative controls
- [ ] Hearing Conservation
- [ ] Exposure Guidelines
- [ ] Fall Protection
- [ ] TIP conducted ***(specify job/JSA)***
- [ ] Isolation
- [ ] Monitoring
- [ ] Respiratory Protection
- [ ] Decon Procedures
- [ ] Work Zones/Site Control
- [ ] Traffic Control
- [ ] Other ***(specify)***

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the HASP
Dale Lynch / ARCADIS /	DML / 0800	DML /	✓
TEODORE JONES / INFRAMAP /	TDJ / 0800		✓
Richard Alexander Bishop /	RMA / 0800		✓
Ricky L White	RW / 0500		✓
Sarah Kryston / ATC /	SK / 0500		✓
Matt Blover / Arcadis /	MB / 0500		✓
Ronnie Johnson / UGSI	RJ / 0500		

Important Information and Numbers

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

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In the event of a motor vehicle accident, employees will notify the field supervisor who will then notify the Project or Task Manager.

In the event of a utility strike or other damage to property of a client or 3rd party, employees will immediately notify the field supervisor, who will then immediately notify the Project or Task Manager.

Visitor Name/Co - not involved in work

In	Out
In	Out
In	Out
In	Out

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

If it is necessary to **STOP THE JOB, I** will perform **TRACK**; and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with their work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard.

Post Daily Activities Review - Review at end of day or before next day's work (Check those applicable and explain:)

- [ ] Lessons learned and best practices learned today: _____
- [ ] Incidents that occurred today: _____
- [ ] Any Stop Work interventions today? _____
- [ ] Corrective/Preventive Actions needed for future work: _____
- [ ] Any other H&S issues: _____

Keep H&S 1st in all things

WorkCare - 1.800.455.6155

2/10/21

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

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☒ **STOP WORK AUTHORITY** (Must be addressed in every Tailgate meeting - (*See statements below*)

☐ Elimination	☐ Substitution	☐ Isolation
☐ Engineering controls	☐ Administrative controls	☐ Monitoring
☐ General PPE Usage	☐ Hearing Conservation	☐ Respiratory Protection
☐ Personal Hygiene	☐ Exposure Guidelines	☐ Decon Procedures
☐ Emergency Action Plan (EAP)	☐ Fall Protection	☐ Work Zones/Site Control
☐ JSA to be developed/used ***(specify)***	☐ TIP conducted ***(specify job/JSA)***	☐ Traffic Control
☐	☐	☐ Other ***(specify)***
☐	☐	☐

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the HASP
Dale Lynch / ARCADIS /	DML / 0800	DML /	✓
Ron Johnson / UGS /	RDJ / 0800		
Ricky G Wilson /	RGW / 0800		
Matt Blower / Arcadis /	MB / 0800	MB /	✓
Brooke Conway / APG DPW /	BC / 0800	BC / 0810	✓
Sara Kingston / ATL ENV /	SK / 0810		
Teodore Jones / INFRAMAP /	TJ / 0800		✓
Elisabeth Alexander / Stantec /	EA / 0800		✓

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Keep H&S 1st in all things

WorkCare - 1.800.455.6155

2/11/21

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

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- [x] **STOP WORK AUTHORITY** (Must be addressed in every Tailgate meeting - (*See statements below*)
- [ ] Elimination
- [ ] Engineering controls
- [ ] General PPE Usage
- [ ] Personal Hygiene
- [ ] Emergency Action Plan (EAP)
- [ ] JSA to be developed/used ***(specify)***
- [ ] Substitution
- [ ] Administrative controls
- [ ] Hearing Conservation
- [ ] Exposure Guidelines
- [ ] Fall Protection
- [ ] TIP conducted ***(specify job/JSA)***
- [ ] Isolation
- [ ] Monitoring
- [ ] Respiratory Protection
- [ ] Decon Procedures
- [ ] Work Zones/Site Control
- [ ] Traffic Control
- [ ] Other ***(specify)***

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the HASP
Dale Lynch / ARCADIS /	DAL/0830	DAL/	✓
Ronnie Johnson / UGS /	RBJ/8AM		
Matt Blower / Arcadis /			
Paul HARVEY / DPW /			
~~Eric~~			
Sam Cutton / Sarah Krystyn / ARC	SK/945		

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- [ ] Any other H&S issues: _____

Keep H&S 1st in all things

WorkCare - 1.800.455.6155

Document Control Number:TGM - _____
TGM + project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year

ARCADIS Design & Consultancy for natural and built assets

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance, at least daily.

Project Name: APG			**Project Location:** BIGFIELD
Date: 3/2/21	**Time:** 08 30	**Conducted by:** C. CORTOLANO	**Signature/Title:** CARGA
Client: APG		**Client Contact:** BRUCE CONWAY	**Subcontractor companies:** GSI

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1 DECON RODS
2 SET UP LAY DOWN AREA
3 DPT - SOIL SAMPLING
4
5
6

Other Hazardous Activities - Check the box if there are any other Arcadis, Client or other party activities that may pose hazards to Arcadis operations ☐ If there are none, write "None" here: _____

If yes, describe them here: _____

How will they be controlled? _____

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

	Doc #		Doc #		Doc #
☐ Not applicable		☐ Working at Height		☐ Confined Space	
☐ Energy Isolation (LOTO)		☐ Excavation/Trenching		☐ Hot Work	
☐ Mechanical Lifting Ops		☒ Overhead & Buried Utilities	✓	☐ Other permit	

Discuss following questions (for some review previous day's post activities). **Check if yes :**

☐ Incidents from day before to review?	☐ Lessons learned from the day before?	☐ Topics from Corp H&S to cover?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☐ Any Stop Work Interventions yesterday?
☒ JSAs or procedures are available?	☐ Field teams to "dirty" JSAs, as needed?	☒ If deviations, notify PM & client
☒ Staff has appropriate PPE?	☐ Staff knows Emergency Plan (EAP)?	☒ All equipment checked & OK?
		☒ Staff knows gathering points?

Comments: _____

Recognize the hazards (check all those that are discussed) (Examples are provided) and **A**ssess the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category.

☒ Gravity (i.e., ladder, scaffold, trips) (L M H) STF	☐ Motion (i.e., traffic, moving water) (L M H)	☒ Mechanical (i.e., augers, motors) (L M H) DPT
☐ Electrical (i.e., utilities, lightning) (L M H)	☐ Pressure (i.e., gas cylinders, wells) (L M H)	☒ Environment (i.e., heat, cold, ice) (L M H) HEAT / REST
☐ Chemical (i.e., fuel, acid, paint) (L M H)	☐ Biological (i.e., ticks, poison ivy) (L M H)	☐ Radiation (i.e., alpha, sun, laser) (L M H)
☒ Sound (i.e., machinery, generators) (L M H) DPT RIG	☐ Personal (i.e. alone, night, not fit) (L M H)	☒ Driving (i.e. car, ATV, boat, dozer) (L M H) TRUCK - BUGGY

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss those methods to control the hazards that will be implemented for the day): Review the HASP, applicable JSAs, and other control processes. Discuss and document any additional control processes.

☒ **STOP WORK AUTHORITY** (Must be addressed in every Tailgate meeting - (*See statements below*)

☐ Elimination	☐ Substitution	☐ Isolation
☐ Engineering controls	☐ Administrative controls	☐ Monitoring
☐ General PPE Usage	☐ Hearing Conservation	☐ Respiratory Protection
☐ Personal Hygiene	☐ Exposure Guidelines	☐ Decon Procedures
☐ Emergency Action Plan (EAP)	☐ Fall Protection	☐ Work Zones/Site Control
☐ JSA to be developed/used ***(specify)***	☐ TIP conducted ***(specify job/JSA)***	☐ Traffic Control
☐	☐	☐ Other ***(specify)***

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	Have read and understand the HASP
Tim Niblett GSI			
Dan Marchese GSI			
Dale Lynch MIRADI			
Robert W. Page Jr CARA			
Lyle Wilson CENAB			

Important Information and Numbers

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

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Visitor Name/Co - not involved in work

In	Out
In	Out
In	Out
In	Out

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Post Daily Activities Review - Review at end of day or before next day's work (Check those applicable and explain:)

- ☐ Lessons learned and best practices learned today: _____
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- ☐ Corrective/Preventive Actions needed for future work: _____
- ☐ Any other H&S issues: _____

Keep H&S 1st in all things | **WorkCare** - 1.800.455.6155

Document Control Number:TGM - _____
TGM + project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year

ARCADIS Design & Consultancy for natural and built assets

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance, at least daily.

Project Name: APG			**Project Location:** BIG FIELD
Date: 3/3/21	**Time:** 0800	**Conducted by:** C. ORTOLANO	**Signature/Title:**
Client: APG		**Client Contact:** BROOK CUNNUM	**Subcontractor companies:**

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1 IDPT
2 DECON
3 SOIL/GW SAMPLING
4
5
6

Other Hazardous Activities - Check the box if there are any other Arcadis, Client or other party activities that may pose hazards to Arcadis operations ☐ If there are none, write "None" here: _____

If yes, describe them here: _____

How will they be controlled? _____

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	Doc #		Doc #		Doc #
☐ Not applicable		☐ Working at Height		☐ Confined Space	
☐ Energy Isolation (LOTO)		☐ Excavation/Trenching		☐ Hot Work	
☐ Mechanical Lifting Ops		☒ Overhead & Buried Utilities		☐ Other permit	

Discuss following questions (for some review previous day's post activities). **Check if yes :**

☐ Incidents from day before to review?	☐ Lessons learned from the day before?	☐ Topics from Corp H&S to cover?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☐ Any Stop Work Interventions yesterday?
☐ JSAs or procedures are available?	☐ Field teams to "dirty" JSAs, as needed?	☐ If deviations, notify PM & client
☒ Staff has appropriate PPE?	☒ Staff knows Emergency Plan (EAP)?	☒ All equipment checked & OK?
		☒ Staff knows gathering points?

Comments: _____

Recognize the hazards (check all those that are discussed) (Examples are provided) and **A**ssess the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category.

☒ Gravity (i.e., ladder, scaffold, trips) (L M H) STF	☐ Motion (i.e., traffic, moving water) (L M H)	☒ Mechanical (i.e., augers, motors) (L M H) RIG / PPE
☐ Electrical (i.e., utilities, lightning) (L M H)	☐ Pressure (i.e., gas cylinders, wells) (L M H)	☒ Environment (i.e., heat, cold, ice) (L M H) WORK / REST
☐ Chemical (i.e., fuel, acid, paint) (L M H)	☐ Biological (i.e., ticks, poison ivy) (L M H)	☐ Radiation (i.e., alpha, sun, laser) (L M H)
☒ Sound (i.e., machinery, generators) (L M H) RIG / PPE	☐ Personal (i.e. alone, night, not fit) (L M H)	☒ Driving (i.e. car, ATV, boat, dozer) (L M H) TRUCK

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

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- [ ] Engineering controls
- [ ] General PPE Usage
- [ ] Personal Hygiene
- [ ] Emergency Action Plan (EAP)
- [ ] JSA to be developed/used ***(specify)***
- [ ] Substitution
- [ ] Administrative controls
- [x] Hearing Conservation
- [ ] Exposure Guidelines
- [ ] Fall Protection
- [ ] TIP conducted ***(specify job/JSA)***
- [ ] Isolation
- [ ] Monitoring
- [ ] Respiratory Protection
- [x] Decon Procedures
- [x] Work Zones/Site Control
- [ ] Traffic Control
- [ ] Other ***(specify)***

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the HASP
Robert Page, Jr	800 AM		
Ricky & Whitten			
Tim Niblett GST			
Dave Lynch ARCADIS			
Don Marchese GST			

Important Information and Numbers

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Visitor Name/Co - not involved in work

In	Out
In	Out
In	Out
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- [ ] Any other H&S issues: _____

Keep H&S 1st in all things

WorkCare - 1.800.455.6155

Document Control Number:TGM - _____

TGM + project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year

ARCADIS Design & Consultancy for natural and built assets

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance, at least daily.

Project Name: APG			**Project Location:** APG
Date: 3/4/21	**Time:** 0800	**Conducted by:** C. ORTOLANO	**Signature/Title:** C. ORTOLANO
Client: USACE		**Client Contact:** BROOKE CONWAY	**Subcontractor companies:**

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1 DTP - SAMPLING 3 SOIL SAMPLING 5 _____

2 DECON 4 _____ 6 _____

Other Hazardous Activities - Check the box if there are any other Arcadis, Client or other party activities that may pose hazards to Arcadis operations ☐ If there are none, write "None" here: _____

If yes, describe them here: _____

How will they be controlled? _____

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

	Doc #		Doc #		Doc #
☐ Not applicable		☐ Working at Height		☐ Confined Space	
☐ Energy Isolation (LOTO)		☐ Excavation/Trenching		☐ Hot Work	
☐ Mechanical Lifting Ops		☒ Overhead & Buried Utilities		☐ Other permit	

Discuss following questions (for some review previous day's post activities). **Check if yes :**

☐ Incidents from day before to review?	☐ Lessons learned from the day before?	☐ Topics from Corp H&S to cover?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☐ Any Stop Work Interventions yesterday?
☐ JSAs or procedures are available?	☐ Field teams to "dirty" JSAs, as needed?	☐ If deviations, notify PM & client
☒ Staff has appropriate PPE?	☒ Staff knows Emergency Plan (EAP)?	☒ All equipment checked & OK?
		☒ Staff knows gathering points?

Comments: _____

Recognize the hazards (check all those that are discussed) (Examples are provided) and **A**ssess the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category.

☒ Gravity (i.e., ladder, scaffold, trips) (L M H) STF	☐ Motion (i.e., traffic, moving water) (L M H)	☒ Mechanical (i.e., augers, motors) (L M H) DPT	
☐ Electrical (i.e., utilities, lightning) (L M H)	☐ Pressure (i.e., gas cylinders, wells) (L M H)	☒ Environment (i.e., heat, cold, ice) (L M H) WORK / REST	
☐ Chemical (i.e., fuel, acid, paint) (L M H)	☐ Biological (i.e., ticks, poison ivy) (L M H)	☐ Radiation (i.e., alpha, sun, laser) (L M H)	
☒ Sound (i.e., machinery, generators) (L M H) DPT - PPE	☐ Personal (i.e. alone, night, not fit) (L M H)	☒ Driving (i.e. car, ATV, boat, dozer) (L M H) TRUCK	

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss those methods to control the hazards that will be implemented for the day): Review the HASP, applicable JSAs, and other control processes. Discuss and document any additional control processes.

☒ **STOP WORK AUTHORITY** (Must be addressed in every Tailgate meeting - (*See statements below*)		
☐ Elimination	☐ Substitution	☐ Isolation
☐ Engineering controls	☐ Administrative controls	☐ Monitoring
☒ General PPE Usage	☒ Hearing Conservation	☐ Respiratory Protection
☐ Personal Hygiene	☐ Exposure Guidelines	☒ Decon Procedures
☐ Emergency Action Plan (EAP)	☐ Fall Protection	☒ Work Zones/Site Control
☐ JSA to be developed/used ***(specify)***	☐ TIP conducted ***(specify job/JSA)***	☐ Traffic Control
☐	☐	☐ Other ***(specify)***
☐	☐	☐

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the HASP
Tim Niblett GSI			
Don Marchese GSI			
Robert W. Page Jr CAFA JXO			
Ricky G Whitten CENAB			
Brooke E. Conway APG-DPW			
Dale M. Lynch AKADIS			

Important Information and Numbers

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

In the event of an injury, employees will call WorkCare at 1.800.455.6155 and then notify the field supervisor who will then notify the Project or Task Manager.

In the event of a motor vehicle accident, employees will notify the field supervisor who will then notify the Project or Task Manager.

In the event of a utility strike or other damage to property of a client or 3rd party, employees will immediately notify the field supervisor, who will then immediately notify the Project or Task Manager.

Visitor Name/Co - not involved in work

In	Out
In	Out
In	Out
In	Out

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

If it is necessary to **STOP THE JOB,** I will perform **TRACK**; and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with their work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard.

Post Daily Activities Review - Review at end of day or before next day's work (Check those applicable and explain:)

- ☐ Lessons learned and best practices learned today: _____
- ☐ Incidents that occurred today: _____
- ☐ Any Stop Work interventions today? _____
- ☐ Corrective/Preventive Actions needed for future work: _____
- ☐ Any other H&S issues: _____

Keep H&S 1st in all things

WorkCare - 1.800.455.6155

Document Control Number:TGM - _____

TGM + project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year

ARCADIS Design & Consultancy for natural and built assets

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance, at least daily.

Project Name: APG		**Project Location:** APG	
Date: 0503	**Time:** 3/5/21	**Conducted by:** L. ORTOMANO	**Signature/Title:** CAT RA
Client: APG / USACE		**Client Contact:** BROOKE CAMMY	**Subcontractor companies:** GSI

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1 DPT
2 SOIL SAMPLING / WATER
3 DECON
4
5
6

Other Hazardous Activities - Check the box if there are any other Arcadis, Client or other party activities that may pose hazards to Arcadis operations ☐ If there are none, write "None" here: _____

If yes, describe them here: _____

How will they be controlled? _____

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

	Doc #		Doc #		Doc #
☒ Not applicable		☐ Working at Height		☐ Confined Space	
☐ Energy Isolation (LOTO)		☐ Excavation/Trenching		☐ Hot Work	
☐ Mechanical Lifting Ops		☒ Overhead & Buried Utilities		☐ Other permit	

Discuss following questions (for some review previous day's post activities). **Check if yes :**

☐ Incidents from day before to review?	☐ Lessons learned from the day before?	☐ Topics from Corp H&S to cover?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☐ Any Stop Work Interventions yesterday?
☐ JSAs or procedures are available?	☐ Field teams to "dirty" JSAs, as needed?	☐ If deviations, notify PM & client
☒ Staff has appropriate PPE?	☒ Staff knows Emergency Plan (EAP)?	☒ All equipment checked & OK?
		☒ Staff knows gathering points?

Comments: _____

Recognize the hazards (check all those that are discussed) (Examples are provided) and **A**ssess the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category.

☒ Gravity (i.e., ladder, scaffold, trips) (L M H) STF	☐ Motion (i.e., traffic, moving water) (L M H)	☒ Mechanical (i.e., augers, motors) (L M H) DPT
☐ Electrical (i.e., utilities, lightning) (L M H)	☐ Pressure (i.e., gas cylinders, wells) (L M H)	☒ Environment (i.e., heat, cold, ice) (L M H) WORK / PPE
☐ Chemical (i.e., fuel, acid, paint) (L M H)	☐ Biological (i.e., ticks, poison ivy) (L M H)	☐ Radiation (i.e., alpha, sun, laser) (L M H)
☒ Sound (i.e., machinery, generators) (L M H) DPT	☐ Personal (i.e. alone, night, not fit) (L M H)	☒ Driving (i.e. car, ATV, boat, dozer) (L M H) TRUCK

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss those methods to control the hazards that will be implemented for the day): Review the HASP, applicable JSAs, and other control processes. Discuss and document any additional control processes.

- [x] **STOP WORK AUTHORITY** (Must be addressed in every Tailgate meeting - (*See statements below*)

[ ] Elimination	[ ] Substitution	[ ] Isolation
[ ] Engineering controls	[ ] Administrative controls	[ ] Monitoring
[x] General PPE Usage	[x] Hearing Conservation	[ ] Respiratory Protection
[ ] Personal Hygiene	[ ] Exposure Guidelines	[x] Decon Procedures
[ ] Emergency Action Plan (EAP)	[ ] Fall Protection	[x] Work Zones/Site Control
[ ] JSA to be developed/used ***(specify)***	[ ] TIP conducted ***(specify job/JSA)***	[ ] Traffic Control
[ ]	[ ]	[ ] Other ***(specify)***
[ ]	[ ]	[ ]

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the HASP
Tim Niblett GST			
Ricky Gwilliam CENAB			
Robert Page CARA			
Dave Lynch ARCADIS			
Dana Marchese GSI			

Important Information and Numbers

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

In the event of an injury, employees will call WorkCare at 1.800.455.6155 and then notify the field supervisor who will then notify the Project or Task Manager.

In the event of a motor vehicle accident, employees will notify the field supervisor who will then notify the Project or Task Manager.

In the event of a utility strike or other damage to property of a client or 3rd party, employees will immediately notify the field supervisor, who will then immediately notify the Project or Task Manager.

Visitor Name/Co - not involved in work

	In	Out
	In	Out
	In	Out
	In	Out

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

If it is necessary to **STOP THE JOB,** I will perform **TRACK**; and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with their work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard.

Post Daily Activities Review - Review at end of day or before next day's work (Check those applicable and explain:)

- [ ] Lessons learned and best practices learned today: _____
- [ ] Incidents that occurred today: _____
- [ ] Any Stop Work interventions today? _____
- [ ] Corrective/Preventive Actions needed for future work: _____
- [ ] Any other H&S issues: _____

Keep H&S 1st in all things

WorkCare - 1.800.455.6155

Document Control Number:TGM - _____
TGM + project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year

ARCADIS Design & Consultancy for natural and built assets

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance, at least daily.

Project Name: AP6			**Project Location:** AP6
Date: 3/8/21	**Time:** 0900	**Conducted by:** R. ORTOLANO	**Signature/Title:**
Client: AP6		**Client Contact:** BROOKE COWAN	**Subcontractor companies:** GSI

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1 DPT
2 SOIL/WATER SAMPLING
3
4
5
6

Other Hazardous Activities - Check the box if there are any other Arcadis, Client or other party activities that may pose hazards to Arcadis operations ☐ If there are none, write "None" here: _____

If yes, describe them here: _____

How will they be controlled? _____

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

	Doc #		Doc #		Doc #
☐ Not applicable		☐ Working at Height		☐ Confined Space	
☐ Energy Isolation (LOTO)		☐ Excavation/Trenching		☐ Hot Work	
☐ Mechanical Lifting Ops		☒ Overhead & Buried Utilities		☐ Other permit	

Discuss following questions (for some review previous day's post activities). **Check if yes :**

☐ Incidents from day before to review?	☐ Lessons learned from the day before?	☐ Topics from Corp H&S to cover?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☐ Any Stop Work Interventions yesterday?
☐ JSAs or procedures are available?	☐ Field teams to "dirty" JSAs, as needed?	☐ If deviations, notify PM & client
☒ Staff has appropriate PPE?	☐ Staff knows Emergency Plan (EAP)?	☒ All equipment checked & OK?
		☒ Staff knows gathering points?

Comments: _____

Recognize the hazards (check all those that are discussed) (Examples are provided) and **A**ssess the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category.

☒ Gravity (i.e., ladder, scaffold, trips) (L M H) STEP	☐ Motion (i.e., traffic, moving water) (L M H)	☒ Mechanical (i.e., augers, motors) (L M H) DRILL
☐ Electrical (i.e., utilities, lightning) (L M H)	☐ Pressure (i.e., gas cylinders, wells) (L M H)	☒ Environment (i.e., heat, cold, ice) (L M H) WOUND/REST
☐ Chemical (i.e., fuel, acid, paint) (L M H)	☐ Biological (i.e., ticks, poison ivy) (L M H)	☐ Radiation (i.e., alpha, sun, laser) (L M H)
☒ Sound (i.e., machinery, generators) (L M H) DRILL	☐ Personal (i.e. alone, night, not fit) (L M H)	☒ Driving (i.e. car, ATV, boat, dozer) (L M H) TRUCK

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss those methods to control the hazards that will be implemented for the day): Review the HASP, applicable JSAs, and other control processes. Discuss and document any additional control processes.

- [X] **STOP WORK AUTHORITY** (Must be addressed in every Tailgate meeting - (*See statements below*)
- [ ] Elimination
- [ ] Engineering controls
- [X] General PPE Usage
- [ ] Personal Hygiene
- [ ] Emergency Action Plan (EAP)
- [ ] JSA to be developed/used ***(specify)***
- [ ] Substitution
- [ ] Administrative controls
- [X] Hearing Conservation
- [ ] Exposure Guidelines
- [ ] Fall Protection
- [ ] TIP conducted ***(specify job/JSA)***
- [ ] Isolation
- [ ] Monitoring
- [ ] Respiratory Protection
- [X] Decon Procedures
- [X] Work Zones/Site Control
- [ ] Traffic Control
- [ ] Other ***(specify)***

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the HASP
Tim Niblett GSI			
Don Marchese GSI			
Ricky Gwinnon CENCOB			
Robert Page CARA			

Important Information and Numbers

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

In the event of an injury, employees will call WorkCare at 1.800.455.6155 and then notify the field supervisor who will then notify the Project or Task Manager.

In the event of a motor vehicle accident, employees will notify the field supervisor who will then notify the Project or Task Manager.

In the event of a utility strike or other damage to property of a client or 3rd party, employees will immediately notify the field supervisor, who will then immediately notify the Project or Task Manager.

Visitor Name/Co - not involved in work

	In	Out
	In	Out
	In	Out
	In	Out

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

If it is necessary to **STOP THE JOB,** I will perform **TRACK**; and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with their work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard.

Post Daily Activities Review - Review at end of day or before next day's work (Check those applicable and explain:)

- [ ] Lessons learned and best practices learned today: _____
- [ ] Incidents that occurred today: _____
- [ ] Any Stop Work interventions today? _____
- [ ] Corrective/Preventive Actions needed for future work: _____
- [ ] Any other H&S issues: _____

Keep H&S 1st in all things

WorkCare - 1.800.455.6155

Document Control Number:TGM - 30001996.3BK50-03/09/21
TGM + project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year

ARCADIS Design & Consultancy for natural and built assets

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance, at least daily.

Project Name: APG PFAS SI			**Project Location:** Aberdeen Proving Ground
Date: 3/9/21	**Time:** 0915 ~~0800~~ DL	**Conducted by:** Dale Lynch	**Signature/Title:** Geologist
Client: US ARMY		**Client Contact:** Brooke 410 436 7058	**Subcontractor companies:** UXO (Core)

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1 GW Sampling 3 _____ 5 _____

2 _____ 4 _____ 6 _____

Other Hazardous Activities - Check the box if there are any other Arcadis, Client or other party activities that may pose hazards to Arcadis operations ☐ If there are none, write "None" here: NONE

If yes, describe them here: _____

How will they be controlled? _____

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

	Doc #		Doc #		Doc #
☑ Not applicable		☐ Working at Height		☐ Confined Space	
☐ Energy Isolation (LOTO)		☐ Excavation/Trenching		☐ Hot Work	
☐ Mechanical Lifting Ops		☐ Overhead & Buried Utilities		☐ Other permit	

Discuss following questions (for some review previous day's post activities). **Check if yes :**

☐ Incidents from day before to review?	☐ Lessons learned from the day before?	☐ Any Stop Work Interventions yesterday?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☐ If deviations, notify PM & client
☑ JSAs or procedures are available?	☑ Field teams to "dirty" JSAs, as needed?	☑ All equipment checked & OK?
☑ Staff has appropriate PPE?	☑ Staff knows Emergency Plan (EAP)?	☑ Staff knows gathering points?

☐ Topics from Corp H&S to cover?

Comments: _____

Recognize the hazards (check all those that are discussed) (Examples are provided) and **A**ssess the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category.

☑ Gravity (i.e., ladder, scaffold, trips) (L M (H))	☑ Motion (i.e., traffic, moving water) (L M (H))	☐ Mechanical (i.e., augers, motors) (L M H)
☑ Electrical (i.e., utilities, lightning) ((L) M H)	☐ Pressure (i.e., gas cylinders, wells) (L M H)	☐ Environment (i.e., heat, cold, ice) (L M H)
☐ Chemical (i.e., fuel, acid, paint) (L M H)	☑ Biological (i.e., ticks, poison ivy) (L (M) H)	☑ Radiation (i.e., alpha, sun, laser) (L M (H))
☑ Sound (i.e., machinery, generators) (L (M) H)	☐ Personal (i.e. alone, night, not fit) (L M H)	☑ Driving (i.e. car, ATV, boat, dozer) (L M (H))

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss those methods to control the hazards that will be implemented for the day): Review the HASP, applicable JSAs, and other control processes. Discuss and document any additional control processes.

☒	**STOP WORK AUTHORITY** (Must be addressed in every Tailgate meeting - (*See statements below*)				
☐	Elimination	☐	Substitution	☐	Isolation
☐	Engineering controls	☐	Administrative controls	☐	Monitoring
☐	General PPE Usage	☐	Hearing Conservation	☐	Respiratory Protection
☐	Personal Hygiene	☐	Exposure Guidelines	☐	Decon Procedures
☐	Emergency Action Plan (EAP)	☐	Fall Protection	☐	Work Zones/Site Control
☐	JSA to be developed/used ***(specify)***	☐	TIP conducted ***(specify job/JSA)***	☐	Traffic Control
☐		☐		☐	Other ***(specify)***
☐		☐		☐	

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the HASP
Jeff Dietroth ABG PPWEO			
Dale Lynch / ARCADIS			
Ricky L Whitten / CENAB			

Important Information and Numbers

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

In the event of an injury, employees will call WorkCare at 1.800.455.6155 and then notify the field supervisor who will then notify the Project or Task Manager.

In the event of a motor vehicle accident, employees will notify the field supervisor who will then notify the Project or Task Manager.

In the event of a utility strike or other damage to property of a client or 3rd party, employees will immediately notify the field supervisor, who will then immediately notify the Project or Task Manager.

Visitor Name/Co - not involved in work

In	Out
In	Out
In	Out
In	Out

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

If it is necessary to **STOP THE JOB,** I will perform **TRACK**; and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with their work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard.

Post Daily Activities Review - Review at end of day or before next day's work (Check those applicable and explain:)

- ☐ Lessons learned and best practices learned today: _____
- ☐ Incidents that occurred today: _____
- ☐ Any Stop Work interventions today? _____
- ☐ Corrective/Preventive Actions needed for future work: _____
- ☐ Any other H&S issues: _____

Keep H&S 1st in all things

WorkCare - 1.800.455.6155

Document Control Number:TGM - 30001996.3BX50-03/10/2021
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ARCADIS Design & Consultancy for natural and built assets

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance, at least daily.

Project Name: APG PFAS SI			**Project Location:** Aberdeen Proving Ground
Date:	**Time:**	**Conducted by:** Dale Lynch	**Signature/Title:** / Geologist
Client:		**Client Contact:**	**Subcontractor companies:**

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1 Soil Sampling
2 Surface Water Sampling
3 Sediment Sampling
4
5
6

Other Hazardous Activities - Check the box if there are any other Arcadis, Client or other party activities that may pose hazards to Arcadis operations ☐ If there are none, write "None" here: NONE

If yes, describe them here:

How will they be controlled?

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

	Doc #		Doc #		Doc #
☐ Not applicable		☐ Working at Height		☐ Confined Space	
☐ Energy Isolation (LOTO)		☐ Excavation/Trenching		☐ Hot Work	
☐ Mechanical Lifting Ops		☐ Overhead & Buried Utilities		☐ Other permit	

Discuss following questions (for some review previous day's post activities). **Check if yes :**

☐ Incidents from day before to review?	☐ Lessons learned from the day before?	☐ Topics from Corp H&S to cover?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☑ Any Stop Work Interventions yesterday?
☑ JSAs or procedures are available?	☑ Field teams to "dirty" JSAs, as needed?	☑ If deviations, notify PM & client
☑ Staff has appropriate PPE?	☑ Staff knows Emergency Plan (EAP)?	☑ All equipment checked & OK?
		☑ Staff knows gathering points?

Comments:

Recognize the hazards (check all those that are discussed) (Examples are provided) and **Assess** the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category.

☑ Gravity (i.e., ladder, scaffold, trips) (L M (H))	☑ Motion (i.e. (traffic), moving water) (L M (H))	☐ Mechanical (i.e., augers, motors) (L M H)
☑ Electrical (i.e., utilities, lightning) (L M (H))	☐ Pressure (i.e., gas cylinders, wells) (L M H)	☑ Environment (i.e. (heat), cold, ice) (L (M) H)
☐ Chemical (i.e., fuel, acid, paint) (L M H)	☑ Biological (i.e., ticks, poison ivy) (L M (H))	☐ Radiation (i.e., alpha, sun, laser) (L M H)
☑ Sound (i.e., machinery, generators) ((L) M H)	☐ Personal (i.e. alone, night, not fit) (L M H)	☑ Driving (i.e. car, ATV, boat, dozer) (L M (H))

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss those methods to control the hazards that will be implemented for the day): Review the HASP, applicable JSAs, and other control processes. Discuss and document any additional control processes.

- [x] **STOP WORK AUTHORITY** (Must be addressed in every Tailgate meeting - (*See statements below*)
- [ ] Elimination
- [ ] Engineering controls
- [ ] General PPE Usage
- [ ] Personal Hygiene
- [ ] Emergency Action Plan (EAP)
- [ ] JSA to be developed/used ***(specify)***
- [ ] Substitution
- [ ] Administrative controls
- [ ] Hearing Conservation
- [ ] Exposure Guidelines
- [ ] Fall Protection
- [ ] TIP conducted ***(specify job/JSA)***
- [ ] Isolation
- [ ] Monitoring
- [ ] Respiratory Protection
- [ ] Decon Procedures
- [ ] Work Zones/Site Control
- [ ] Traffic Control
- [ ] Other ***(specify)***

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the HASP
Dale Lynch / ARCADIS			
Robert Page / CARA			
*Ricky Whitley / CEMB			

Important Information and Numbers

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

In the event of an injury, employees will call WorkCare at 1.800.455.6155 and then notify the field supervisor who will then notify the Project or Task Manager.

In the event of a motor vehicle accident, employees will notify the field supervisor who will then notify the Project or Task Manager.

In the event of a utility strike or other damage to property of a client or 3rd party, employees will immediately notify the field supervisor, who will then immediately notify the Project or Task Manager.

Visitor Name/Co - not involved in work

In	Out
In	Out
In	Out
In	Out

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

If it is necessary to **STOP THE JOB, I** will perform **TRACK**; and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with their work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard.

Post Daily Activities Review - Review at end of day or before next day's work (Check those applicable and explain:)

- [ ] Lessons learned and best practices learned today: _____
- [ ] Incidents that occurred today: _____
- [ ] Any Stop Work interventions today? _____
- [ ] Corrective/Preventive Actions needed for future work: _____
- [ ] Any other H&S issues: _____

Keep H&S 1st in all things

WorkCare - 1.800.455.6155

ARCADIS Design & Consultancy for natural and built assets

Document Control Number:TGM - _____
TGM + project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance, at least daily.

Project Name: APG			**Project Location:** APG
Date: 3/11/21	**Time:** 0500	**Conducted by:** C. ORTOLANO	**Signature/Title:** CARCA
Client: APG		**Client Contact:** BRIDGET CONWAY	**Subcontractor companies:** GSI

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1 DPT
2 SOIL / WATER SAMPLE
3 _____
4 _____
5 _____
6 _____

Other Hazardous Activities - Check the box if there are any other Arcadis, Client or other party activities that may pose hazards to Arcadis operations ☐ If there are none, write "None" here: _____

If yes, describe them here: _____

How will they be controlled? _____

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

	Doc #		Doc #		Doc #
☐ Not applicable		☐ Working at Height		☐ Confined Space	
☐ Energy Isolation (LOTO)		☐ Excavation/Trenching		☐ Hot Work	
☐ Mechanical Lifting Ops		☒ Overhead & Buried Utilities		☐ Other permit	

Discuss following questions (for some review previous day's post activities). **Check if yes :**

☐ Incidents from day before to review?	☐ Lessons learned from the day before?	☐ Topics from Corp H&S to cover?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☐ Any Stop Work Interventions yesterday?
☐ JSAs or procedures are available?	☐ Field teams to "dirty" JSAs, as needed?	☐ If deviations, notify PM & client
☑ Staff has appropriate PPE?	☐ Staff knows Emergency Plan (EAP)?	☒ All equipment checked & OK?
		☒ Staff knows gathering points?

Comments: _____

Recognize the hazards (check all those that are discussed) (Examples are provided) and **A**ssess the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category.

☒ Gravity (i.e., ladder, scaffold, trips) (L M H) STP	☐ Motion (i.e., traffic, moving water) (L M H)	☒ Mechanical (i.e., augers, motors) (L M H) DPT
☐ Electrical (i.e., utilities, lightning) (L M H)	☐ Pressure (i.e., gas cylinders, wells) (L M H)	☐ Environment (i.e., heat, cold, ice) (L M H)
☐ Chemical (i.e., fuel, acid, paint) (L M H)	☐ Biological (i.e., ticks, poison ivy) (L M H)	☐ Radiation (i.e., alpha, sun, laser) (L M H)
☒ Sound (i.e., machinery, generators) (L M H) DRILL	☐ Personal (i.e. alone, night, not fit) (L M H)	☒ Driving (i.e. car, ATV, boat, dozer) (L M H) VEHICLE

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss those methods to control the hazards that will be implemented for the day): Review the HASP, applicable JSAs, and other control processes. Discuss and document any additional control processes.

- [x] **STOP WORK AUTHORITY** (Must be addressed in every Tailgate meeting - (*See statements below*)
- [ ] Elimination
- [ ] Engineering controls
- [ ] General PPE Usage
- [ ] Personal Hygiene
- [ ] Emergency Action Plan (EAP)
- [ ] JSA to be developed/used ***(specify)***
- [ ] Substitution
- [ ] Administrative controls
- [x] Hearing Conservation
- [ ] Exposure Guidelines
- [ ] Fall Protection
- [ ] TIP conducted ***(specify job/JSA)***
- [ ] Isolation
- [ ] Monitoring
- [ ] Respiratory Protection
- [ ] Decon Procedures
- [ ] Work Zones/Site Control
- [ ] Traffic Control
- [ ] Other ***(specify)***

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the HASP
Tim Nisbett GSI			
Don Marchese GSI			
Dale Lynch ARCADIS			
Ricky G Wilton CENAB			

Important Information and Numbers

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

In the event of an injury, employees will call WorkCare at 1.800.455.6155 and then notify the field supervisor who will then notify the Project or Task Manager.

In the event of a motor vehicle accident, employees will notify the field supervisor who will then notify the Project or Task Manager.

In the event of a utility strike or other damage to property of a client or 3rd party, employees will immediately notify the field supervisor, who will then immediately notify the Project or Task Manager.

Visitor Name/Co - not involved in work

In	Out
In	Out
In	Out
In	Out

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Post Daily Activities Review - Review at end of day or before next day's work (Check those applicable and explain:)

- [ ] Lessons learned and best practices learned today: _____
- [ ] Incidents that occurred today: _____
- [ ] Any Stop Work interventions today? _____
- [ ] Corrective/Preventive Actions needed for future work: _____
- [ ] Any other H&S issues: _____

Keep H&S 1st in all things

WorkCare - 1.800.455.6155

Document Control Number:TGM - _____

TGM + project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year

ARCADIS Design & Consultancy for natural and built assets

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance, at least daily.

Project Name: APG			**Project Location:** APG
Date: 3/12/21	**Time:** 0800	**Conducted by:** C. URTOLANO	**Signature/Title:** CA R CA
Client: APG		**Client Contact:** BROOKE CONWAY	**Subcontractor companies:** 651

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1 DPT 3 _____ 5 _____

2 SOIL / WATER SAMPLING 4 _____ 6 _____

Other Hazardous Activities - Check the box if there are any other Arcadis, Client or other party activities that may pose hazards to Arcadis operations ☐ If there are none, write "None" here: _____

If yes, describe them here: _____

How will they be controlled? _____

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

	Doc #		Doc #		Doc #
☐ Not applicable		☐ Working at Height		☐ Confined Space	
☐ Energy Isolation (LOTO)		☐ Excavation/Trenching		☐ Hot Work	
☐ Mechanical Lifting Ops		☒ Overhead & Buried Utilities		☐ Other permit	

Discuss following questions (for some review previous day's post activities). **Check if yes :**

☐ Incidents from day before to review?	☐ Lessons learned from the day before?	☐ Topics from Corp H&S to cover?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☐ Any Stop Work Interventions yesterday?
☐ JSAs or procedures are available?	☐ Field teams to "dirty" JSAs, as needed?	☐ If deviations, notify PM & client
☒ Staff has appropriate PPE?	☐ Staff knows Emergency Plan (EAP)?	☒ All equipment checked & OK?
		☒ Staff knows gathering points?

Comments: _____

Recognize the hazards (check all those that are discussed) (Examples are provided) and **A**ssess the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category.

☒ Gravity (i.e., ladder, scaffold, trips) STF (L) M H	☐ Motion (i.e., traffic, moving water) (L M H)	☒ Mechanical (i.e., augers, motors) (L) M H) DPT
☐ Electrical (i.e., utilities, lightning) (L M H)	☐ Pressure (i.e., gas cylinders, wells) (L M H)	☐ Environment (i.e., heat, cold, ice) (L M H)
☐ Chemical (i.e., fuel, acid, paint) (L M H)	☐ Biological (i.e., ticks, poison ivy) (L M H)	☐ Radiation (i.e., alpha, sun, laser) (L M H)
☒ Sound (i.e., machinery, generators) (L) M H)	☐ Personal (i.e. alone, night, not fit) (L M H)	☒ Driving (i.e. car, ATV, boat, dozer) (L) M H) TRUCK

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss those methods to control the hazards that will be implemented for the day): Review the HASP, applicable JSAs, and other control processes. Discuss and document any additional control processes.

- [x] **STOP WORK AUTHORITY** (Must be addressed in every Tailgate meeting - (*See statements below*)

[ ] Elimination	[ ] Substitution	[ ] Isolation
[ ] Engineering controls	[ ] Administrative controls	[ ] Monitoring
[ ] General PPE Usage	[ ] Hearing Conservation	[ ] Respiratory Protection
[ ] Personal Hygiene	[x] Exposure Guidelines	[ ] Decon Procedures
[ ] Emergency Action Plan (EAP)	[ ] Fall Protection	[ ] Work Zones/Site Control
[ ] JSA to be developed/used ***(specify)***	[ ] TIP conducted ***(specify job/JSA)***	[ ] Traffic Control
		[ ] Other ***(specify)***

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the HASP
Tim Niblett GSI			
Dale Lynch ARIADIS			
Don Marchese GSI			

Important Information and Numbers

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

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In the event of a motor vehicle accident, employees will notify the field supervisor who will then notify the Project or Task Manager.

In the event of a utility strike or other damage to property of a client or 3rd party, employees will immediately notify the field supervisor, who will then immediately notify the Project or Task Manager.

Visitor Name/Co - not involved in work

In	Out
In	Out
In	Out
In	Out

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

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Post Daily Activities Review - Review at end of day or before next day's work (Check those applicable and explain:)

- [ ] Lessons learned and best practices learned today: _____
- [ ] Incidents that occurred today: _____
- [ ] Any Stop Work interventions today? _____
- [ ] Corrective/Preventive Actions needed for future work: _____
- [ ] Any other H&S issues: _____

Keep H&S 1st in all things

WorkCare - 1.800.455.6155

Document Control Number:TGM - _____
TGM + project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year

ARCADIS Design & Consultancy for natural and built assets

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance, at least daily.

Project Name: APG			**Project Location:** APG
Date: 3/15/21	**Time:** 0800	**Conducted by:** C. ORTOLANO	**Signature/Title:** ORARCA
Client: APG		**Client Contact:** BROOKE CONWAY	**Subcontractor companies:** GSI

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1 DPT
2 SOIL/WATER SAMPLING
3 _____
4 _____
5 _____
6 _____

Other Hazardous Activities - Check the box if there are any other Arcadis, Client or other party activities that may pose hazards to Arcadis operations ☐ If there are none, write "None" here: _____

If yes, describe them here: _____

How will they be controlled? _____

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

	Doc #		Doc #		Doc #
☐ Not applicable		☐ Working at Height		☐ Confined Space	
☐ Energy Isolation (LOTO)		☐ Excavation/Trenching		☐ Hot Work	
☐ Mechanical Lifting Ops		☒ Overhead & Buried Utilities		☐ Other permit	

Discuss following questions (for some review previous day's post activities). **Check if yes :**

☐ Incidents from day before to review?	☐ Lessons learned from the day before?	☐ Topics from Corp H&S to cover?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☐ Any Stop Work Interventions yesterday?
☐ JSAs or procedures are available?	☐ Field teams to "dirty" JSAs, as needed?	☐ If deviations, notify PM & client
☒ Staff has appropriate PPE?	☐ Staff knows Emergency Plan (EAP)?	☒ All equipment checked & OK?
		☐ Staff knows gathering points?

Comments: _____

Recognize the hazards (check all those that are discussed) (Examples are provided) and **A**ssess the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category.

☒ Gravity (i.e., ladder, scaffold, trips) (L M H) STF	☐ Motion (i.e., traffic, moving water) (L M H)	☒ Mechanical (i.e., augers, motors) (L M H) DPT	
☐ Electrical (i.e., utilities, lightning) (L M H)	☐ Pressure (i.e., gas cylinders, wells) (L M H)	☒ Environment (i.e., heat, cold, ice) (L M H) WORK/REST	
☐ Chemical (i.e., fuel, acid, paint) (L M H)	☐ Biological (i.e., ticks, poison ivy) (L M H)	☐ Radiation (i.e., alpha, sun, laser) (L M H)	
☒ Sound (i.e., machinery, generators) (L M H) DPT	☐ Personal (i.e. alone, night, not fit) (L M H)	☒ Driving (i.e. car, ATV, boat, dozer) (L M H) TRUCK	

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss those methods to control the hazards that will be implemented for the day): Review the HASP, applicable JSAs, and other control processes. Discuss and document any additional control processes.

- [x] **STOP WORK AUTHORITY** (Must be addressed in every Tailgate meeting - (*See statements below*)

[ ] Elimination	[ ] Substitution	[ ] Isolation
[ ] Engineering controls	[ ] Administrative controls	[ ] Monitoring
[ ] General PPE Usage	[x] Hearing Conservation	[ ] Respiratory Protection
[ ] Personal Hygiene	[ ] Exposure Guidelines	[ ] Decon Procedures
[ ] Emergency Action Plan (EAP)	[ ] Fall Protection	[ ] Work Zones/Site Control
[ ] JSA to be developed/used ***(specify)***	[ ] TIP conducted ***(specify job/JSA)***	[ ] Traffic Control
		[ ] Other ***(specify)***

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the HASP
Dan Lynch / ARCADIS /			
Ricky G Whitten / CCNFB /			
Dan Marchese GSI			
Jim Wibbett GSI			
Robert Page CARA			

Important Information and Numbers

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

In the event of an injury, employees will call WorkCare at 1.800.455.6155 and then notify the field supervisor who will then notify the Project or Task Manager.

In the event of a motor vehicle accident, employees will notify the field supervisor who will then notify the Project or Task Manager.

In the event of a utility strike or other damage to property of a client or 3rd party, employees will immediately notify the field supervisor, who will then immediately notify the Project or Task Manager.

Visitor Name/Co - not involved in work

In	Out
In	Out
In	Out
In	Out

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

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Post Daily Activities Review - Review at end of day or before next day's work (Check those applicable and explain:)

- [ ] Lessons learned and best practices learned today: _____
- [ ] Incidents that occurred today: _____
- [ ] Any Stop Work interventions today? _____
- [ ] Corrective/Preventive Actions needed for future work: _____
- [ ] Any other H&S issues: _____

Keep H&S 1st in all things

WorkCare - 1.800.455.6155

Document Control Number:TGM - _____
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ARCADIS Design & Consultancy for natural and built assets

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance, at least daily.

Project Name: ADG			**Project Location:** ADG
Date: 3/16/21	**Time:** 0900	**Conducted by:** C. ORTOLANO	**Signature/Title:** CAR CA
Client: ADG		**Client Contact:** BROOK COUNAY	**Subcontractor companies:** GSI

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1 DPT 3 _____ 5 _____
2 SOIL/WATER SAMPLING 4 _____ 6 _____

Other Hazardous Activities - Check the box if there are any other Arcadis, Client or other party activities that may pose hazards to Arcadis operations ☐ If there are none, write "None" here: _____

If yes, describe them here: _____

How will they be controlled? _____

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

	Doc #		Doc #		Doc #
☐ Not applicable		☐ Working at Height		☐ Confined Space	
☐ Energy Isolation (LOTO)		☐ Excavation/Trenching		☐ Hot Work	
☐ Mechanical Lifting Ops		☒ Overhead & Buried Utilities		☐ Other permit	

Discuss following questions (for some review previous day's post activities). **Check if yes :**

☐ Incidents from day before to review?	☐ Lessons learned from the day before?	☐ Topics from Corp H&S to cover?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☐ Any Stop Work Interventions yesterday?
☐ JSAs or procedures are available?	☐ Field teams to "dirty" JSAs, as needed?	☐ If deviations, notify PM & client
☒ Staff has appropriate PPE?	☐ Staff knows Emergency Plan (EAP)?	☒ All equipment checked & OK?
		☐ Staff knows gathering points?

Comments: _____

Recognize the hazards (check all those that are discussed) (Examples are provided) and **A**ssess the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category.

☒ Gravity (i.e., ladder, scaffold, trips) (L M H) STF	☐ Motion (i.e., traffic, moving water) (L M H)	☒ Mechanical (i.e., augers, motors) (L M H) DPT	
☐ Electrical (i.e., utilities, lightning) (L M H)	☐ Pressure (i.e., gas cylinders, wells) (L M H)	☒ Environment (i.e., heat, cold, ice) (L M H) WIND / REST	
☐ Chemical (i.e., fuel, acid, paint) (L M H)	☐ Biological (i.e., ticks, poison ivy) (L M H)	☐ Radiation (i.e., alpha, sun, laser) (L M H)	
☒ Sound (i.e., machinery, generators) (L M H) DPT	☐ Personal (i.e. alone, night, not fit) (L M H)	☒ Driving (i.e. car, ATV, boat, dozer) (L M H) TRUCK	

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss those methods to control the hazards that will be implemented for the day): Review the HASP, applicable JSAs, and other control processes. Discuss and document any additional control processes.

- [x] **STOP WORK AUTHORITY** (Must be addressed in every Tailgate meeting - (*See statements below*)
- [ ] Elimination
- [ ] Engineering controls
- [ ] General PPE Usage
- [ ] Personal Hygiene
- [ ] Emergency Action Plan (EAP)
- [ ] JSA to be developed/used ***(specify)***
- [ ] Substitution
- [ ] Administrative controls
- [ ] Hearing Conservation
- [ ] Exposure Guidelines
- [ ] Fall Protection
- [ ] TIP conducted ***(specify job/JSA)***
- [ ] Isolation
- [ ] Monitoring
- [ ] Respiratory Protection
- [ ] Decon Procedures
- [ ] Work Zones/Site Control
- [ ] Traffic Control
- [ ] Other ***(specify)***

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature			Initial & Sign in Time	Initial & Sign out Time	I have read and understand the HASP
Robert Page Jr	CARA				
Ricky Whitten	CENTB				
Don Marchese	GSI				
Tim Niblett	GSF				
Dave Lynch	ARIADIS				

Important Information and Numbers

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

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Visitor Name/Co - not involved in work

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In	Out
In	Out
In	Out

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- [ ] Lessons learned and best practices learned today:
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Keep H&S 1st in all things

WorkCare - 1.800.455.6155

Document Control Number:TGM - _____

TGM + project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year

ARCADIS Design & Consultancy for natural and built assets

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance, at least daily.

Project Name: APG			**Project Location:** APG
Date: 3/17/21	**Time:** 0800	**Conducted by:** C. ORTOLANO	**Signature/Title:** C. ORTOLANO
Client: APG		**Client Contact:** BROOK CONWAY	**Subcontractor companies:** GSI

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1 DPT
2 SOIL/WATER SAMPLING
3
4
5
6

Other Hazardous Activities - Check the box if there are any other Arcadis, Client or other party activities that may pose hazards to Arcadis operations ☐ If there are none, write "None" here: _____

If yes, describe them here: _____

How will they be controlled? _____

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

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☐ Mechanical Lifting Ops		☒ Overhead & Buried Utilities		☐ Other permit	

Discuss following questions (for some review previous day's post activities). **Check if yes :**

☐ Incidents from day before to review?	☐ Lessons learned from the day before?	☐ Topics from Corp H&S to cover?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☐ Any Stop Work Interventions yesterday?
☐ JSAs or procedures are available?	☐ Field teams to "dirty" JSAs, as needed?	☐ If deviations, notify PM & client
☒ Staff has appropriate PPE?	☐ Staff knows Emergency Plan (EAP)?	☒ All equipment checked & OK?
		☐ Staff knows gathering points?

Comments: _____

Recognize the hazards (check all those that are discussed) (Examples are provided) and **A**ssess the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category.

☒ Gravity (i.e., ladder, scaffold, trips) (L M H) STF	☐ Motion (i.e., traffic, moving water) (L M H)	☒ Mechanical (i.e., augers, motors) (L M H) DPT
☐ Electrical (i.e., utilities, lightning) (L M H)	☐ Pressure (i.e., gas cylinders, wells) (L M H)	☐ Environment (i.e., heat, cold, ice) (L M H)
☐ Chemical (i.e., fuel, acid, paint) (L M H)	☐ Biological (i.e., ticks, poison ivy) (L M H)	☐ Radiation (i.e., alpha, sun, laser) (L M H)
☒ Sound (i.e., machinery, generators) (L M H) DPT	☐ Personal (i.e. alone, night, not fit) (L M H)	☒ Driving (i.e. car, ATV, boat, dozer) (L M H) TRUCK

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss those methods to control the hazards that will be implemented for the day): Review the HASP, applicable JSAs, and other control processes. Discuss and document any additional control processes.

- [X] **STOP WORK AUTHORITY** (Must be addressed in every Tailgate meeting - (*See statements below*)

[ ] Elimination	[ ] Substitution	[ ] Isolation
[ ] Engineering controls	[ ] Administrative controls	[ ] Monitoring
[ ] General PPE Usage	[X] Hearing Conservation	[ ] Respiratory Protection
[ ] Personal Hygiene	[ ] Exposure Guidelines	[ ] Decon Procedures
[ ] Emergency Action Plan (EAP)	[ ] Fall Protection	[ ] Work Zones/Site Control
[ ] JSA to be developed/used ***(specify)***	[ ] TIP conducted ***(specify job/JSA)***	[ ] Traffic Control
[ ]	[ ]	[ ] Other ***(specify)***
[ ]	[ ]	[ ]

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature			Initial & Sign in Time	Initial & Sign out Time	I have read and understand the HASP
Ricky L Whitten	USACE	Ricky L Whitten			
Dan Marchese	GSI	DM			
Tim Niblett	GSI	TN			
Robert Page, Jr	CARA	RP			
Dale Lynch	ARCADIS	Dale Lynch			

Important Information and Numbers

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

In the event of an injury, employees will call WorkCare at 1.800.455.6155 and then notify the field supervisor who will then notify the Project or Task Manager.

In the event of a motor vehicle accident, employees will notify the field supervisor who will then notify the Project or Task Manager.

In the event of a utility strike or other damage to property of a client or 3rd party, employees will immediately notify the field supervisor, who will then immediately notify the Project or Task Manager.

Visitor Name/Co - not involved in work

In	Out
In	Out
In	Out
In	Out

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

If it is necessary to **STOP THE JOB,** I will perform **TRACK**; and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with their work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard.

Post Daily Activities Review - Review at end of day or before next day's work (Check those applicable and explain:)

- [ ] Lessons learned and best practices learned today: _____
- [ ] Incidents that occurred today: _____
- [ ] Any Stop Work interventions today? _____
- [ ] Corrective/Preventive Actions needed for future work: _____
- [ ] Any other H&S issues: _____

Keep H&S 1st in all things

WorkCare - 1.800.455.6155

Document Control Number:TGM - _____
TGM + project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year

ARCADIS Design & Consultancy for natural and built assets

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance, at least daily.

Project Name: APG			**Project Location:** APG
Date: 3/18/21	**Time:** 0800	**Conducted by:** C. DIRTOLANDO	**Signature/Title:** CHRIS
Client: APG		**Client Contact:** BRIDGET CONWAY	**Subcontractor companies:** GSI / SOFT DIG

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1 DPT
2 AIR KNIFE
3 DPT SOIL/WATER SAMPLES
4
6

Other Hazardous Activities - Check the box if there are any other Arcadis, Client or other party activities that may pose hazards to Arcadis operations ☐ If there are none, write "None" here: _____

If yes, describe them here: _____

How will they be controlled? _____

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

	Doc #		Doc #		Doc #
☐ Not applicable		☐ Working at Height		☐ Confined Space	
☐ Energy Isolation (LOTO)		☐ Excavation/Trenching		☐ Hot Work	
☐ Mechanical Lifting Ops		☒ Overhead & Buried Utilities		☐ Other permit	

Discuss following questions (for some review previous day's post activities). **Check if yes :**

☐ Incidents from day before to review?	☐ Lessons learned from the day before?	☐ Topics from Corp H&S to cover?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☐ Any Stop Work Interventions yesterday?
☐ JSAs or procedures are available?	☐ Field teams to "dirty" JSAs, as needed?	☐ If deviations, notify PM & client
☒ Staff has appropriate PPE?	☐ Staff knows Emergency Plan (EAP)?	☒ All equipment checked & OK?
		☐ Staff knows gathering points?

Comments: _____

Recognize the hazards (check all those that are discussed) (Examples are provided) and **A**ssess the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category.

☒ Gravity (i.e., ladder, scaffold, trips) (L M H) STF	☐ Motion (i.e., traffic, moving water) (L M H)	☒ Mechanical (i.e., augers, motors) (L M H) DPT / AIR KNIFE
☐ Electrical (i.e., utilities, lightning) (L M H)	☐ Pressure (i.e., gas cylinders, wells) (L M H)	☒ Environment (i.e., heat, cold, ice) (L M H) RAIN
☐ Chemical (i.e., fuel, acid, paint) (L M H)	☐ Biological (i.e., ticks, poison ivy) (L M H)	☐ Radiation (i.e., alpha, sun, laser) (L M H)
☒ Sound (i.e., machinery, generators) (L M H) DPT / AIR KNIFE	☐ Personal (i.e. alone, night, not fit) (L M H)	☒ Driving (i.e. car, ATV, boat, dozer) (L M H) TRUCK

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss those methods to control the hazards that will be implemented for the day): Review the HASP, applicable JSAs, and other control processes. Discuss and document any additional control processes.

- [x] **STOP WORK AUTHORITY** (Must be addressed in every Tailgate meeting - *(See statements below)*
- [ ] Elimination
- [ ] Engineering controls
- [ ] General PPE Usage
- [ ] Personal Hygiene
- [ ] Emergency Action Plan (EAP)
- [ ] JSA to be developed/used ***(specify)***
- [ ] Substitution
- [ ] Administrative controls
- [ ] Hearing Conservation
- [ ] Exposure Guidelines
- [ ] Fall Protection
- [ ] TIP conducted ***(specify job/JSA)***
- [ ] Isolation
- [ ] Monitoring
- [ ] Respiratory Protection
- [ ] Decon Procedures
- [ ] Work Zones/Site Control
- [ ] Traffic Control
- [ ] Other ***(specify)***

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the HASP
Dale Lynch / ARCADIS			
Justin Moores / Soft Dig			
James Andrews / Soft Dig			
Robert Page Jr / ARCADIS			
Ricky Smith / CENAB			
Tim Niblett GSI			
[illegible] GSI			

Important Information and Numbers

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

In the event of an injury, employees will call WorkCare at 1.800.455.6155 and then notify the field supervisor who will then notify the Project or Task Manager.

In the event of a motor vehicle accident, employees will notify the field supervisor who will then notify the Project or Task Manager.

In the event of a utility strike or other damage to property of a client or 3rd party, employees will immediately notify the field supervisor, who will then immediately notify the Project or Task Manager.

Visitor Name/Co - not involved in work

In	Out
In	Out
In	Out
In	Out

I will **STOP** the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

If it is necessary to **STOP THE JOB**, I will perform **TRACK**; and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with their work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard.

Post Daily Activities Review - Review at end of day or before next day's work (Check those applicable and explain:)

- [ ] Lessons learned and best practices learned today: _____
- [ ] Incidents that occurred today: _____
- [ ] Any Stop Work interventions today? _____
- [ ] Corrective/Preventive Actions needed for future work: _____
- [ ] Any other H&S issues: _____

Keep H&S 1st in all things

WorkCare - 1.800.455.6155

ARCADIS Design & Consultancy for natural and built assets

Document Control Number:TGM - _____
TGM + project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance, at least daily.

Project Name: MPG			**Project Location:** MPG
Date: 3/19/21	**Time:** 0800	**Conducted by:** C. GIRTOUARD	**Signature/Title:** C. GIRTOUARD
Client: MPG		**Client Contact:** BROOK CONLEY	**Subcontractor companies:** GSI

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1 DPT
2 SOIL/WATER SAMPLE
3
4
5
6

Other Hazardous Activities - Check the box if there are any other Arcadis, Client or other party activities that may pose hazards to Arcadis operations ☐ If there are none, write "None" here: _____

If yes, describe them here: _____

How will they be controlled? _____

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

	Doc #		Doc #		Doc #
☐ Not applicable		☐ Working at Height		☐ Confined Space	
☐ Energy Isolation (LOTO)		☐ Excavation/Trenching		☐ Hot Work	
☐ Mechanical Lifting Ops		☒ Overhead & Buried Utilities		☐ Other permit	

Discuss following questions (for some review previous day's post activities). **Check if yes :**

☐ Incidents from day before to review?	☐ Lessons learned from the day before?	☐ Topics from Corp H&S to cover?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☐ Any Stop Work Interventions yesterday?
☐ JSAs or procedures are available?	☐ Field teams to "dirty" JSAs, as needed?	☐ If deviations, notify PM & client
☑ Staff has appropriate PPE?	☐ Staff knows Emergency Plan (EAP)?	☒ All equipment checked & OK?
		☐ Staff knows gathering points?

Comments: _____

Recognize the hazards (check all those that are discussed) (Examples are provided) and **A**ssess the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category.

☒ Gravity (i.e., ladder, scaffold, trips) (L M H) STF	☐ Motion (i.e., traffic, moving water) (L M H)	☒ Mechanical (i.e., augers, motors) (L M H) DPT
☐ Electrical (i.e., utilities, lightning) (L M H)	☐ Pressure (i.e., gas cylinders, wells) (L M H)	☒ Environment (i.e., heat, cold, ice) (L M H) WORK/REST
☐ Chemical (i.e., fuel, acid, paint) (L M H)	☐ Biological (i.e., ticks, poison ivy) (L M H)	☐ Radiation (i.e., alpha, sun, laser) (L M H)
☒ Sound (i.e., machinery, generators) (L M H) DPT	☐ Personal (i.e. alone, night, not fit) (L M H)	☒ Driving (i.e. car, ATV, boat, dozer) (L M H) TRUCK

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss those methods to control the hazards that will be implemented for the day): Review the HASP, applicable JSAs, and other control processes. Discuss and document any additional control processes.

- [X] **STOP WORK AUTHORITY** (Must be addressed in every Tailgate meeting - (*See statements below*)

[ ] Elimination	[ ] Substitution	[ ] Isolation
[ ] Engineering controls	[ ] Administrative controls	[ ] Monitoring
[ ] General PPE Usage	[X] Hearing Conservation	[ ] Respiratory Protection
[ ] Personal Hygiene	[ ] Exposure Guidelines	[ ] Decon Procedures
[ ] Emergency Action Plan (EAP)	[ ] Fall Protection	[ ] Work Zones/Site Control
[ ] JSA to be developed/used ***(specify)***	[ ] TIP conducted ***(specify job/JSA)***	[ ] Traffic Control
[ ]	[ ]	[ ] Other ***(specify)***
[ ]	[ ]	[ ]

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the HASP
Ricky L Whitton BENAB			
Dale Lyndon ARIADIS			
Tim Nisbett GSI			
Don Marchese GSI			
Shannon Platt CARA			

Important Information and Numbers

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

In the event of an injury, employees will call WorkCare at 1.800.455.6155 and then notify the field supervisor who will then notify the Project or Task Manager.

In the event of a motor vehicle accident, employees will notify the field supervisor who will then notify the Project or Task Manager.

In the event of a utility strike or other damage to property of a client or 3rd party, employees will immediately notify the field supervisor, who will then immediately notify the Project or Task Manager.

Visitor Name/Co - not involved in work

In	Out
In	Out
In	Out
In	Out

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

If it is necessary to **STOP THE JOB,** I will perform **TRACK**; and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with their work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard.

Post Daily Activities Review - Review at end of day or before next day's work (Check those applicable and explain:)

- [ ] Lessons learned and best practices learned today: _____
- [ ] Incidents that occurred today: _____
- [ ] Any Stop Work interventions today? _____
- [ ] Corrective/Preventive Actions needed for future work: _____
- [ ] Any other H&S issues: _____

Keep H&S 1st in all things

WorkCare - 1.800.455.6155

ARCADIS Design & Consultancy for natural and built assets

Document Control Number:TGM - _____
TGM + project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance, at least daily.

Project Name: APG PFAs			**Project Location:**
Date: 12/15/21	**Time:** 0718	**Conducted by:** Brian Kelt	**Signature/Title:** / ENVR Scientist
Client: USACE		**Client Contact:**	**Subcontractor companies:** UXO Irate / Drilling company

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1 Drilling 3 GWS 5 _____
2 Soil Sampling 4 UXO locating 6 _____

Other Hazardous Activities - Check the box if there are any other Arcadis, Client or other party activities that may pose hazards to Arcadis operations ☐ If there are none, write "None" here: _____

If yes, describe them here: UXO locating, moving drill around on potentially hazardous ground.

How will they be controlled? UXO Contractors.

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

	Doc #		Doc #		Doc #
☐ Not applicable		☐ Working at Height		☐ Confined Space	
☐ Energy Isolation (LOTO)		☐ Excavation/Trenching		☐ Hot Work	
☐ Mechanical Lifting Ops		☐ Overhead & Buried Utilities		☐ Other permit	

Discuss following questions (for some review previous day's post activities). **Check if yes :**

☐ Incidents from day before to review?	☒ Lessons learned from the day before?	☐ Topics from Corp H&S to cover?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☐ Any Stop Work Interventions yesterday?
☒ JSAs or procedures are available?	☒ Field teams to "dirty" JSAs, as needed?	☒ If deviations, notify PM & client
☒ Staff has appropriate PPE?	☒ Staff knows Emergency Plan (EAP)?	☒ All equipment checked & OK?
		☒ Staff knows gathering points?

Comments: _____

Recognize the hazards (check all those that are discussed) (Examples are provided) and **A**ssess the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category.

☒ Gravity (i.e., ladder, scaffold, trips) (L M H) Slips, trips, and falls	☒ Motion (i.e., traffic, moving water) (L M H)	☒ Mechanical (i.e., augers, motors) (L M H) Drill Rig
☒ Electrical (i.e., utilities, lightning) (L M H) Utilities	☐ Pressure (i.e., gas cylinders, wells) (L M H)	☒ Environment (i.e., heat, cold, ice) (L M H) Cold weather
☐ Chemical (i.e., fuel, acid, paint) (L M H)	☒ Biological (i.e., ticks, poison ivy) (L M H)	☐ Radiation (i.e., alpha, sun, laser) (L M H)
☒ Sound (i.e., machinery, generators) (L M H)	☐ Personal (i.e. alone, night, not fit) (L M H)	☒ Driving (i.e. car, ATV, boat, dozer) (L M H) Trucks

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss those methods to control the hazards that will be implemented for the day): Review the HASP, applicable JSAs, and other control processes. Discuss and document any additional control processes.

- [x] **STOP WORK AUTHORITY** (Must be addressed in every Tailgate meeting - (*See statements below*)

[ ] Elimination	[x] Substitution	[x] Isolation
[x] Engineering controls	[x] Administrative controls	[x] Monitoring
[x] General PPE Usage	[x] Hearing Conservation	[ ] Respiratory Protection
[x] Personal Hygiene	[x] Exposure Guidelines	[x] Decon Procedures
[x] Emergency Action Plan (EAP)	[ ] Fall Protection	[x] Work Zones/Site Control
[x] JSA to be developed/used *(specify)*	[ ] TIP conducted *(specify job/JSA)*	[x] Traffic Control
[ ]	[ ]	[ ] Other *(specify)*
[ ]	[ ]	[ ]

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the HASP
Brian Keh / Arcadis /	BK 0700		
Kevin Rumphry / GSI /	KR 0730		
Ali Berandokmi GSI	AB1 0774		
Justin Coffey / Arcadis /	JHC 0730		

Important Information and Numbers

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

In the event of an injury, employees will call WorkCare at 1.800.455.6155 and then notify the field supervisor who will then notify the Project or Task Manager.

In the event of a motor vehicle accident, employees will notify the field supervisor who will then notify the Project or Task Manager.

In the event of a utility strike or other damage to property of a client or 3rd party, employees will immediately notify the field supervisor, who will then immediately notify the Project or Task Manager.

Visitor Name/Co - not involved in work

In	Out
In	Out
In	Out
In	Out

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

If it is necessary to STOP THE JOB, I will perform TRACK; and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with their work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard.

Post Daily Activities Review - Review at end of day or before next day's work (Check those applicable and explain:)

- [ ] Lessons learned and best practices learned today: _____
- [ ] Incidents that occurred today: _____
- [ ] Any Stop Work interventions today? _____
- [ ] Corrective/Preventive Actions needed for future work: _____
- [ ] Any other H&S issues: _____

Keep H&S 1st in all things

WorkCare - 1.800.455.6155

ARCADIS Design & Consultancy for natural and built assets

Document Control Number:TGM - _____
TGM + project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance, at least daily.

Project Name: APG DFAS			**Project Location:** APG Edgewood
Date:	**Time:** 0714	**Conducted by:** Brian Volk	**Signature/Title:** ENVR Scientist
Client: US ARMY		**Client Contact:**	**Subcontractor companies:** GSI

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1 Drilling 3 Hand Augering 5 Soil sampling
2 UXO locating 4 GWS 6

Other Hazardous Activities - Check the box if there are any other Arcadis, Client or other party activities that may pose hazards to Arcadis operations ☒ If there are none, write "None" here: _____

If yes, describe them here: Yes, drilling and UXO locating

How will they be controlled? _____

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

	Doc #		Doc #		Doc #
☐ Not applicable		☐ Working at Height		☐ Confined Space	
☒ Energy Isolation (LOTO)	36	☐ Excavation/Trenching		☐ Hot Work	
☐ Mechanical Lifting Ops		☐ Overhead & Buried Utilities		☐ Other permit	

Discuss following questions (for some review previous day's post activities). **Check if yes :**

☐ Incidents from day before to review?	☒ Lessons learned from the day before?	☐ Topics from Corp H&S to cover?
☒ Any corrective actions from yesterday? Yes, understand Soil sampling	☒ Will any work deviate from plan?	☐ Any Stop Work Interventions yesterday?
☒ JSAs or procedures are available?	☒ Field teams to "dirty" JSAs, as needed?	☒ If deviations, notify PM & client
☒ Staff has appropriate PPE?	☒ Staff knows Emergency Plan (EAP)?	☒ All equipment checked & OK?
		☒ Staff knows gathering points?

Comments: _____

Recognize the hazards (check all those that are discussed) (Examples are provided) and **A**ssess the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category.

☒ Gravity (i.e., ladder, scaffold, trips) (L (M) H)	☒ Motion (i.e., traffic, moving water) (L (M) H)	☒ Mechanical (i.e., augers, motors) (L M (H)) Rig	
☒ Electrical (i.e., utilities, lightning) (L M H) Mechanical, Utilities	☐ Pressure (i.e., gas cylinders, wells) (L M H)	☒ Environment (i.e., heat, cold, ice) (L M (H))	
☒ Chemical (i.e., fuel, acid, paint) (L M H) Chemical Weapons (UXO)	☒ Biological (i.e., ticks, poison ivy) (L (M) H)	☐ Radiation (i.e., alpha, sun, laser) (L M H)	
☒ Sound (i.e., machinery, generators) (L (M) H) DPT Rig	☐ Personal (i.e. alone, night, not fit) (L M H)	☒ Driving (i.e. car, ATV, boat, dozer) (L M (H)) TRUCKS	

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss those methods to control the hazards that will be implemented for the day): Review the HASP, applicable JSAs, and other control processes. Discuss and document any additional control processes.

- [x] **STOP WORK AUTHORITY** (Must be addressed in every Tailgate meeting - (*See statements below*)
- [x] Elimination
- [x] Engineering controls
- [x] General PPE Usage
- [x] Personal Hygiene
- [x] Emergency Action Plan (EAP)
- [x] JSA to be developed/used *(specify)*
- [x] Substitution
- [x] Administrative controls
- [x] Hearing Conservation
- [x] Exposure Guidelines
- [ ] Fall Protection
- [ ] TIP conducted *(specify job/JSA)*
- [ ] Isolation
- [ ] Monitoring
- [ ] Respiratory Protection
- [x] Decon Procedures
- [x] Work Zones/Site Control
- [x] Traffic Control
- [ ] Other *(specify)*

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature			Initial & Sign in Time	Initial & Sign out Time	I have read and understand the HASP
Brian Kelt	Arcadis		0700 BK		
Ai Bernblok-Nibley	CSI		0700 ABN		
Kevin Pumphrey	CSI		0700 KP		
Adam Pullam	CARA		0700 AP		
HOWARD ROBINETTE	CARA		0700 HR		

Important Information and Numbers

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

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In the event of a motor vehicle accident, employees will notify the field supervisor who will then notify the Project or Task Manager.

In the event of a utility strike or other damage to property of a client or 3rd party, employees will immediately notify the field supervisor, who will then immediately notify the Project or Task Manager.

Visitor Name/Co - not involved in work

	In	Out

I will **STOP** the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions a the work site or hazards not covered by the original hazard assessments.

If it is necessary to **STOP THE JOB**, I will perform **TRACK**; and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with thei work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard.

Post Daily Activities Review - Review at end of day or before next day's work (Check those applicable and explain:)

- [ ] Lessons learned and best practices learned today: _____
- [ ] Incidents that occurred today: _____
- [ ] Any Stop Work interventions today? _____
- [ ] Corrective/Preventive Actions needed for future work: _____
- [ ] Any other H&S issues: _____

Keep H&S 1st in all things

WorkCare - 1.800.455.6155

Utilities and Structures Checklist

ARCADIS Design & Consultancy for natural and built assets

THIS FORM MUST BE COMPLETED IN ENTIRETY PRIOR TO BEGINNING ANY INTRUSIVE WORK

Project: Aberdeen Proving Ground Preliminary Assessment/Site Inspection
Project Number: 02118216.3005.8AC00
Form Completion Date: Form Expiration Date: 3/17/21
All utility markings must be refreshed ≤15 days when work is ongoing. (15 business days post form completion date)

Pre-Field Work

Required: One Call or "811" notified 48-72 hours in advance of work? #: See APG tracker for ticket #'s
Ticket Expiration Date 3/4/21 (Review State Requirements)
Utility companies notified during the One Call process See attached ticket

INFRAMAP	UXO (AAA)		
MISS Utility			

List any other utilities requiring notification: None

Private Locator Contacted (Yes) No

Plan private utility clearance subcontractor assignments, areas, required clearance equipment, depth of clearance needed, types of utilities. When possible re-clear 811 markings to confirm utility locations.

Client provided utility maps or "as built" drawings showing utilities? (Yes) No

Field Work - This must be completed on site, by staff who have a minimum of one year of field experience in identifying utilities. Review Check list with PM or designee prior to beginning intrusive work.
Mechanized intrusive work in utility Tolerance Zone (<30-in.) requires pre-approval by Corporate H&S

List Soil Boring / Well IDs or Excavation Locations applicable to this clearance checklist:
→ SEE APG tracker for well IDs + associated ticket #'s

3 Reliable Lines of Evidence Required Prior to Starting any Subsurface Intrusive Work
One Call/"811" (Reliable as a line of evidence when working in public right of way or easement)
Utility Markings Present: (Paint) (Pin flags/stakes) Other None
orange paint + white FLAGS

Client Provided Maps/Drawings **OR** Maps/Drawings requested but not provided
Client Clearance Name(s)/Affiliation(s) SoftDig
Interview(s): Name(s)/Affiliation(s) INFRAMAP

Did person(s) interviewed indicate depths of any utilities in the subsurface?
(Yes) depths provided: Zone cleared is >30" away from utilities at varying depths Did not know or refused to answer
Additional Comments:

No photo → Army REGS.

Site Inspection (**Complete Page 2 & Photo Document Marked Utilities & Utility Structures**)
Public Records / Maps / As-Builts
Private Locator: (Name and Company) SoftDig
Ground Penetrating Radar (GPR)
Radiofrequency (RF Loc)
Electromagnetic (EM)
Metal Detector

Soft Dig Methods
Termination Depth _____ ft. bgs
Potholing / Vacuum Extraction
Air knife Hydro knife
Probing
(Hand Auguring) 5'

Other: UXO (AAA)
Marine Locator: (Name and Company)

Tips for Successful Utility Location (H&S Standard Section 5.6):
1. Don't forget to look up (mark above grade utilities if warranted)
2. Be on-site with Private Utility Locators
3. Ask Private Locators to "confirm" other's markings
4. Select alternate/backup locations during clearance process
5. Mark out all known utilities. Leave nothing to question
6. No hammering - no pickaxes - no digging bars - no shortcutting
7. No excessive turning or downward force of hand augers/shovels
8. Utilities may run in or directly under asphalt/concrete
9. Clearing, grubbing, and heavy equipment may damage shallow utilities.
10. Is Spotter needed for Heavy Equipment near aboveground utilities?

Utilities and Structures Checklist

ARCADIS Design & Consultancy for natural and built assets

During the site inspection look for the following: **("YES" requires additional investigation and the utility must be marked properly prior to beginning subsurface intrusive work):**

Site Inspection	Utility Color Codes	Present	
A) Natural gas line present (evidence of a gas meter)?	Yellow	Yes	No
i) Feeder Lines to buildings or homes?		Yes	No
B) Evidence of electric lines:	Red		
i) Conduits to ground from electric meter or along wall?		Yes	No
ii) Conduits from power poles running into ground?		Yes	No
iii) Light poles, electric devices with no overhead lines?		Yes	No
iv) Overhead electric lines present? Marked? (See Section L)		Yes	No
C) Evidence of sewer drains:	Green		
i) Restrooms or kitchen on site?		Yes	No
ii) Sewer cleanouts present?		Yes	No
iii) Combined sewer /storm lines or multiple sewer lines?		Yes	No
D) Evidence of water lines:	Blue		
i) Water meter on site or multiple water lines?		Yes	No
ii) Fire hydrants in vicinity of work?		Yes	No
iii) Irrigation systems? (Sprinkler heads, valve boxes, controls in building)		Yes	No
E) Evidence of storm drains:	Green		
i) Open curbside or slotted grate storm drains		Yes	No
ii) Gutter down spouts going into ground		Yes	No
F) Evidence of telecommunication lines:	Orange		
i) Fiber optic warning signs in areas?		Yes	No
ii) Aboveground cable boxes or housings or wires in work area? Marked?		Yes	No
G) Underground storage tanks:			
i) Tank pit present, tank vent present?		Yes	No
ii) Product lines running to dispensers/buildings?		Yes	No
H) Do utilities enter or exit existing structures/buildings?			
If Yes, confirm the utility markings outside of structure/building match up.		Yes	No
I) Proposed excavation marked in white?	White	Yes	No
J) Unclassed utilities / anomalies marked in pink?	Pink	Yes	No
K) **Overhead** Utilities/Communication Lines **- Look Up and MARK**:			
i) Overhead electrical conduit, pipe chases, cable trays, product lines?		Yes	No
ii) Overhead fire sprinkler system?		Yes	No
L) **Overhead** Power lines in or near the work area:			
i) < 50 kV within 10 ft. of work area?		Yes	No
ii) >50 - 200 kV within 15 ft. of work area?		Yes	No
iii) >200-350 kV within 20 ft. of work area?		Yes	No
iv) >350-500 kV within 25 ft. of work area?		Yes	No
v) >500-750 kV within 35 ft. or work area?		Yes	No
vi) >750-1000 kV within 45 ft. of work area?		Yes	No
M) Other:			
i) Evidence of linear asphalt or concrete repair?		Yes	No
ii) Evidence of linear ground subsidence or change in vegetation?		Yes	No
iii) Unmarked manholes or valve covers in work area?		Yes	No
iv) Warning signs (Call Before you Dig, Look Up, etc.) on or adjacent to site?		Yes	No
v) Utility color markings not illustrated in this checklist?	i.e. Purple	Yes	No
vii) Operating heavy equipment on unpaved/unimproved ground; review equipment route for shallow utilities crossing it and modify if necessary.		Yes	No
O) Utilities & Structures Checklist been reviewed by the PM or Designee		Yes	No*

PM or Designee Name: _____ *** If no, STOP WORK, call PM**

See associated Sketches per Field Event Stake out

Name and Signature of person completing the checklist: _____

Date: _____

Do not perform mechanized intrusive work within 30 inches of a utility marking without receiving pre-approval by Corporate H&S.

ALL UTILITY STRIKES REQUIRE CORPORATE H&S NOTIFICATION (EMAIL OR CALL) WITH A CONFIRMED RESPONSE

Utilities and Structures Checklist

ARCADIS Design & Consultancy for natural and built assets

THIS FORM MUST BE COMPLETED IN ENTIRETY PRIOR TO BEGINNING ANY INTRUSIVE WORK

Project: Aberdeen Proving Ground Preliminary Assessment/Site Inspection
Project Number: 02118216.3005.8AC00
Form Completion Date: Form Expiration Date: 3/18/21
All utility markings must be refreshed ≤15 days when work is ongoing. (15 business days post form completion date)

Pre-Field Work

Required: One Call or "811" notified 48-72 hours in advance of work? #: 20-11345, 11346, 11378
Ticket Expiration Date 3/4/21 (Review State Requirements)
Utility companies notified during the One Call process See attached ticket

PFA INFRA MAP	UXO (CARA)		
MISS Utility			

List any other utilities requiring notification: None

Private Locator Contacted (Yes) No

Plan private utility clearance subcontractor assignments, areas, required clearance equipment, depth of clearance needed, types of utilities. When possible re-clear 811 markings to confirm utility locations.

Client provided utility maps or "as built" drawings showing utilities? Yes No

Field Work - This must be completed on site, by staff who have a minimum of one year of field experience in identifying utilities. Review Check list with PM or designee prior to beginning intrusive work.
Mechanized intrusive work in utility Tolerance Zone (<30-in.) requires pre-approval by Corporate H&S

List Soil Boring / Well IDs or Excavation Locations applicable to this clearance checklist:

20-11345 APG-BAF-D1-SO-(0-2)/GW APG-BLDG-1059-1-SO-(0-2)/GW (20-11378)
20-11346 APG-BAF-E-1-SO-(0-2)/GW APG-BLDG-1056-1-SO-(0-2)/GW

3 Reliable Lines of Evidence Required Prior to Starting any Subsurface Intrusive Work
One Call/"811" (Reliable as a line of evidence when working in public right of way or easement)
Utility Markings Present: (Paint) (Pin flags/stakes) Other None
ORANGE PAINT & WHITE FLAGS

Client Provided Maps/Drawings **OR** Maps/Drawings requested but not provided
Client Clearance Interviews: Name(s)/Affiliation(s) SOFT DIG

Did person(s) interviewed indicate depths of any utilities in the subsurface?
(Yes), depths provided: Did not know or refused to answer
Additional Comments:

Site Inspection (**Complete Page 2 & Photo Document Marked Utilities & Utility Structures**)
Public Records / Maps / As-Builts
Private Locator: (Name and Company)
Ground Penetrating Radar (GPR)
Radiofrequency (RF Loc)
Electromagnetic (EM)
Metal Detector

Soft Dig Methods
Termination Depth _____ft. bgs
Potholing / Vacuum Extraction
Air knife Hydro knife
Probing
(Hand Auguring)

Tips for Successful Utility Location (H&S Standard Section 5.6):
1. Don't forget to look up (mark above grade utilities if warranted)
2. Be on-site with Private Utility Locators
3. Ask Private Locators to "confirm" other's markings
4. Select alternate/backup locations during clearance process
5. Mark out all known utilities. Leave nothing to question
6. No hammering - no pickaxes - no digging bars - no shortcutting
7. No excessive turning or downward force of hand augers/shovels
8. Utilities may run in or directly under asphalt/concrete
9. Clearing, grubbing, and heavy equipment may damage shallow utilities.
10. Is Spotter needed for Heavy Equipment near aboveground utilities?

Other: UXO CARA
Marine Locator: (Name and Company)

TRAK

Utilities and Structures Checklist

ARCADIS Design & Consultancy for natural and built assets

During the site inspection look for the following: **("YES" requires additional investigation and the utility must be marked properly prior to beginning subsurface intrusive work):**

Site Inspection	Utility Color Codes	Present	
A) Natural gas line present (evidence of a gas meter)?	Yellow	Yes	No
i) Feeder Lines to buildings or homes?		Yes	No
B) Evidence of electric lines:	Red		
i) Conduits to ground from electric meter or along wall?		Yes	No
ii) Conduits from power poles running into ground?		Yes	No
iii) Light poles, electric devices with no overhead lines?		Yes	No
iv) Overhead electric lines present? Marked? (See Section L)		Yes	No
C) Evidence of sewer drains:	Green		
i) Restrooms or kitchen on site?		Yes	No
ii) Sewer cleanouts present?		Yes	No
iii) Combined sewer /storm lines or multiple sewer lines?		Yes	No
D) Evidence of water lines:	Blue		
i) Water meter on site or multiple water lines?		Yes	No
ii) Fire hydrants in vicinity of work?		Yes	No
iii) Irrigation systems? (Sprinkler heads, valve boxes, controls in building)		Yes	No
E) Evidence of storm drains:	Green		
i) Open curbside or slotted grate storm drains		Yes	No
ii) Gutter down spouts going into ground		Yes	No
F) Evidence of telecommunication lines:	Orange		
i) Fiber optic warning signs in areas?		Yes	No
ii) Aboveground cable boxes or housings or wires in work area? Marked?		Yes	No
G) Underground storage tanks:			
i) Tank pit present, tank vent present?		Yes	No
ii) Product lines running to dispensers/buildings?		Yes	No
H) Do utilities enter or exit existing structures/buildings?			
If Yes, confirm the utility markings outside of structure/building match up.		Yes	No
I) Proposed excavation marked in white?	White	Yes	No
J) Unclassed utilities / anomalies marked in pink?	Pink	Yes	No
K) **Overhead** Utilities/Communication Lines - **Look Up and MARK**:			
i) Overhead electrical conduit, pipe chases, cable trays, product lines?		Yes	No
ii) Overhead fire sprinkler system?		Yes	No
L) **Overhead** Power lines in or near the work area:			
i) < 50 kV within 10 ft. of work area?		Yes	No
ii) >50 - 200 kV within 15 ft. of work area?		Yes	No
iii) >200-350 kV within 20 ft. of work area?		Yes	No
iv) >350-500 kV within 25 ft. of work area?		Yes	No
v) >500-750 kV within 35 ft. or work area?		Yes	No
vi) >750-1000 kV within 45 ft. of work area?		Yes	No
M) Other:			
i) Evidence of linear asphalt or concrete repair?		Yes	No
ii) Evidence of linear ground subsidence or change in vegetation?		Yes	No
iii) Unmarked manholes or valve covers in work area?		Yes	No
iv) Warning signs (Call Before you Dig, Look Up, etc.) on or adjacent to site?		Yes	No
v) Utility color markings not illustrated in this checklist?	i.e. Purple	Yes	No
vii) Operating heavy equipment on unpaved/unimproved ground; review equipment route for shallow utilities crossing it and modify if necessary.		Yes	No
O) Utilities & Structures Checklist been reviewed by the PM or Designee		Yes	No*
PM or Designee Name: _____		* If no, STOP WORK, call PM	

Name and Signature of person completing the checklist: _____

Date: _____ _____

Do not perform mechanized intrusive work within 30 inches of a utility marking without receiving pre-approval by Corporate H&S.

ALL UTILITY STRIKES REQUIRE CORPORATE H&S NOTIFICATION (EMAIL OR CALL) WITH A CONFIRMED RESPONSE

Utilities and Structures Checklist

ARCADIS Design & Consultancy for natural and built assets

THIS FORM MUST BE COMPLETED IN ENTIRETY PRIOR TO BEGINNING ANY INTRUSIVE WORK

Project: Aberdeen Proving Ground Preliminary Assessment/Site Inspection
Project Number: 02118216.3005.8AC00
Form Completion Date: Form Expiration Date: 3/19/21
All utility markings must be refreshed ≤15 days when work is ongoing. (15 business days post form completion date)

Pre-Field Work

Required: One Call or "811" notified 48-72 hours in advance of work? #: 20-11378 20-11359
Ticket Expiration Date 3/17 (Review State Requirements) 20-11377
Utility companies notified during the One Call process See attached ticket
INFRA MAP | UXO (Cara) | | |
Miss Utility | | | |
List any other utilities requiring notification: None
| | | | |

Private Locator Contacted (Yes) No
Plan private utility clearance subcontractor assignments, areas, required clearance equipment, depth of clearance needed, types of utilities. When possible re-clear 811 markings to confirm utility locations.

Client provided utility maps or "as built" drawings showing utilities? Yes No

Field Work - This must be completed on site, by staff who have a minimum of one year of field experience in identifying utilities. Review Check list with PM or designee prior to beginning intrusive work.
Mechanized intrusive work in utility Tolerance Zone (<30-in.) requires pre-approval by Corporate H&S

List Soil Boring / Well IDs or Excavation Locations applicable to this clearance checklist:

APG-Hangar-1060-1-SO-(0-2)/GW
APG-Loading-PAD-1-SO-(0-2)/GW
APG-MFR1-1-SO-(0-2)/GW
APG-MFR1-2-SO-(0-2)/GW
~~APG-FTA-MUB-MW~~
APG-OLD-FTA-1-SO(0-2)/GW
APG-OLD-FTA-2-SO-(0-2)/GW

3 Reliable Lines of Evidence Required Prior to Starting any Subsurface Intrusive Work
One Call/"811" (Reliable as a line of evidence when working in public right of way or easement)
Utility Markings Present: (Paint) (Pin flags/stakes) Other None

Orange PAINT + White FLAGS

Client Provided Maps/Drawings **OR** Maps/Drawings requested but not provided
Client Clearance Name(s)/Affiliation(s) Soft DIG
Interview(s): Name(s)/Affiliation(s)

Did person(s) interviewed indicate depths of any utilities in the subsurface?
Yes, depths provided: Did not know or refused to answer
Additional Comments:

Site Inspection (**Complete Page 2 & Photo Document Marked Utilities & Utility Structures**)
Public Records / Maps / As-Builts
Private Locator: (Name and Company) Soft DIG
Ground Penetrating Radar (GPR)
Radiofrequency (RF Loc)
Electromagnetic (EM)
Metal Detector

Soft Dig Methods
Termination Depth _____ft. bgs
Potholing / Vacuum Extraction
Air knife Hydro knife
Probing
Hand Auguring
Other: UXO Cara

Tips for Successful Utility Location (H&S Standard Section 5.6):
1. Don't forget to look up (mark above grade utilities if warranted)
2. Be on-site with Private Utility Locators
3. Ask Private Locators to "confirm" other's markings
4. Select alternate/backup locations during clearance process
5. Mark out all known utilities. Leave nothing to question
6. No hammering - no pickaxes - no digging bars - no shortcutting
7. No excessive turning or downward force of hand augers/shovels
8. Utilities may run in or directly under asphalt/concrete
9. Clearing, grubbing, and heavy equipment may damage shallow utilities.
10. Is Spotter needed for Heavy Equipment near aboveground utilities?

Marine Locator: (Name and Company)

Utilities and Structures Checklist

ARCADIS Design & Consultancy for natural and built assets

During the site inspection look for the following: **("YES" requires additional investigation and the utility must be marked properly prior to beginning subsurface intrusive work):**

Site Inspection	Utility Color Codes	Present	
A) Natural gas line present (evidence of a gas meter)?	Yellow	Yes	No
i) Feeder Lines to buildings or homes?		Yes	No
B) Evidence of electric lines:	Red		
i) Conduits to ground from electric meter or along wall?		Yes	No
ii) Conduits from power poles running into ground?		Yes	No
iii) Light poles, electric devices with no overhead lines?		Yes	No
iv) Overhead electric lines present? Marked? (See Section L)		Yes	No
C) Evidence of sewer drains:	Green		
i) Restrooms or kitchen on site?		Yes	No
ii) Sewer cleanouts present?		Yes	No
iii) Combined sewer /storm lines or multiple sewer lines?		Yes	No
D) Evidence of water lines:	Blue		
i) Water meter on site or multiple water lines?		Yes	No
ii) Fire hydrants in vicinity of work?		Yes	No
iii) Irrigation systems? (Sprinkler heads, valve boxes, controls in building)		Yes	No
E) Evidence of storm drains:	Green		
i) Open curbside or slotted grate storm drains		Yes	No
ii) Gutter down spouts going into ground		Yes	No
F) Evidence of telecommunication lines:	Orange		
i) Fiber optic warning signs in areas?		Yes	No
ii) Aboveground cable boxes or housings or wires in work area? Marked?		Yes	No
G) Underground storage tanks:			
i) Tank pit present, tank vent present?		Yes	No
ii) Product lines running to dispensers/buildings?		Yes	No
H) Do utilities enter or exit existing structures/buildings?			
If Yes, confirm the utility markings outside of structure/building match up.		Yes	No
I) Proposed excavation marked in white?	White	Yes	No
J) Unclassed utilities / anomalies marked in pink?	Pink	Yes	No
K) **Overhead** Utilities/Communication Lines - **Look Up and MARK**:			
i) Overhead electrical conduit, pipe chases, cable trays, product lines?		Yes	No
ii) Overhead fire sprinkler system?		Yes	No
L) **Overhead** Power lines in or near the work area:			
i) < 50 kV within 10 ft. of work area?		Yes	No
ii) >50 - 200 kV within 15 ft. of work area?		Yes	No
iii) >200-350 kV within 20 ft. of work area?		Yes	No
iv) >350-500 kV within 25 ft. of work area?		Yes	No
v) >500-750 kV within 35 ft. or work area?		Yes	No
vi) >750-1000 kV within 45 ft. of work area?		Yes	No
M) Other:			
i) Evidence of linear asphalt or concrete repair?		Yes	No
ii) Evidence of linear ground subsidence or change in vegetation?		Yes	No
iii) Unmarked manholes or valve covers in work area?		Yes	No
iv) Warning signs (Call Before you Dig, Look Up, etc.) on or adjacent to site?		Yes	No
v) Utility color markings not illustrated in this checklist?	i.e. Purple	Yes	No
vii) Operating heavy equipment on unpaved/unimproved ground; review equipment route for shallow utilities crossing it and modify if necessary.		Yes	No
O) Utilities & Structures Checklist been reviewed by the PM or Designee		Yes	No*

PM or Designee Name: _____ * If no, STOP WORK, call PM

Marked Cleared UXO area until FLAG for DPT location

Name and Signature of person completing the checklist: Daniel Lynch

Date: _____

Do not perform mechanized intrusive work within 30 inches of a utility marking without receiving pre-approval by Corporate H&S.

ALL UTILITY STRIKES REQUIRE CORPORATE H&S NOTIFICATION (EMAIL OR CALL) WITH A CONFIRMED RESPONSE

Utilities and Structures Checklist

3/5/21

ARCADIS Design & Consultancy for natural and built assets

THIS FORM MUST BE COMPLETED IN ENTIRETY PRIOR TO BEGINNING ANY INTRUSIVE WORK

Project: Aberdeen Proving Ground Preliminary Assessment/Site Inspection
Project Number: 02118216.3005.8AC00
Form Completion Date: Form Expiration Date: 3/20/21
All utility markings must be refreshed ≤15 days when work is ongoing. (15 business days post form completion date)

Pre-Field Work

Required: One Call or "811" notified 48-72 hours in advance of work? #: 20-11357, 20-11356, 20-11355
Ticket Expiration Date 3/17 (Review State Requirements)
Utility companies notified during the One Call process See attached ticket
INFRA MAP, UXO (area), Miss Utility
List any other utilities requiring notification: None

Private Locator Contacted (Yes) No

Plan private utility clearance subcontractor assignments, areas, required clearance equipment, depth of clearance needed, types of utilities. When possible re-clear 811 markings to confirm utility locations.

Client provided utility maps or "as built" drawings showing utilities? (Yes) No

Field Work - This must be completed on site, by staff who have a minimum of one year of field experience in identifying utilities. Review Check list with PM or designee prior to beginning intrusive work.
Mechanized intrusive work in utility Tolerance Zone (<30-in.) requires pre-approval by Corporate H&S

List Soil Boring / Well IDs or Excavation Locations applicable to this clearance checklist:

APG-ABR6-1-GW, APG-ABR6-2-SO-(0-2), APG-ABR7-1-SO-(0-2), APG-ABR6-1-SO-(0-2), APG-ABR7-1-GW, APG-ABR3-1-GW, APG-ABR3-1-SO-(0-2)

3 Reliable Lines of Evidence Required Prior to Starting any Subsurface Intrusive Work
One Call/"811" (Reliable as a line of evidence when working in public right of way or easement)
Utility Markings Present: Paint Pin flags/stakes Other None

Client Provided Maps/Drawings **OR** Maps/Drawings requested but not provided
Client Clearance Name(s)/Affiliation(s) Soft Dig
Interview(s): Name(s)/Affiliation(s)

Did person(s) interviewed indicate depths of any utilities in the subsurface?
Yes, depths provided: Did not know or refused to answer
Additional Comments:

Site Inspection (**Complete Page 2 & Photo Document Marked Utilities & Utility Structures**)
Public Records / Maps / As-Builts
Private Locator: (Name and Company) Soft Dig
Ground Penetrating Radar (GPR)
Radiofrequency (RF Loc)
Electromagnetic (EM)
Metal Detector

Soft Dig Methods
Termination Depth _____ft. bgs
Potholing / Vacuum Extraction
Air knife Hydro knife
Probing
Hand Auguring

Other: UXO (area)
Marine Locator: (Name and Company)

Tips for Successful Utility Location (H&S Standard Section 5.6):
1. Don't forget to look up (mark above grade utilities if warranted)
2. Be on-site with Private Utility Locators
3. Ask Private Locators to "confirm" other's markings
4. Select alternate/backup locations during clearance process
5. Mark out all known utilities. Leave nothing to question
6. No hammering - no pickaxes - no digging bars - no shortcutting
7. No excessive turning or downward force of hand augers/shovels
8. Utilities may run in or directly under asphalt/concrete
9. Clearing, grubbing, and heavy equipment may damage shallow utilities.
10. Is Spotter needed for Heavy Equipment near aboveground utilities?

TRACK

Utilities and Structures Checklist

ARCADIS Design & Consultancy for natural and built assets

During the site inspection look for the following: **("YES" requires additional investigation and the utility must be marked properly prior to beginning subsurface intrusive work):**

Site Inspection	**Utility Color Codes**	**Present**	
A) Natural gas line present (evidence of a gas meter)?	Yellow	Yes	No
i) Feeder Lines to buildings or homes?		Yes	No
B) Evidence of electric lines:	Red		
i) Conduits to ground from electric meter or along wall?		Yes	No
ii) Conduits from power poles running into ground?		Yes	No
iii) Light poles, electric devices with no overhead lines?		Yes	No
iv) Overhead electric lines present? Marked? (See Section L)		Yes	No
C) Evidence of sewer drains:	Green		
i) Restrooms or kitchen on site?		Yes	No
ii) Sewer cleanouts present?		Yes	No
iii) Combined sewer /storm lines or multiple sewer lines?		Yes	No
D) Evidence of water lines:	Blue		
i) Water meter on site or multiple water lines?		Yes	No
ii) Fire hydrants in vicinity of work?		Yes	No
iii) Irrigation systems? (Sprinkler heads, valve boxes, controls in building)		Yes	No
E) Evidence of storm drains:	Green		
i) Open curbside or slotted grate storm drains		Yes	No
ii) Gutter down spouts going into ground		Yes	No
F) Evidence of telecommunication lines:	Orange		
i) Fiber optic warning signs in areas?		Yes	No
ii) Aboveground cable boxes or housings or wires in work area? Marked?		Yes	No
G) Underground storage tanks:			
i) Tank pit present, tank vent present?		Yes	No
ii) Product lines running to dispensers/buildings?		Yes	No
H) Do utilities enter or exit existing structures/buildings?			
If Yes, confirm the utility markings outside of structure/building match up.		Yes	No
I) Proposed excavation marked in white?	White	Yes	No
J) Unclassed utilities / anomalies marked in pink?	Pink	Yes	No
K) **Overhead** Utilities/Communication Lines - **Look Up and MARK**:			
i) Overhead electrical conduit, pipe chases, cable trays, product lines?		Yes	No
ii) Overhead fire sprinkler system?		Yes	No
L) **Overhead** Power lines in or near the work area:			
i) < 50 kV within 10 ft. of work area?		Yes	No
ii) >50 - 200 kV within 15 ft. of work area?		Yes	No
iii) >200-350 kV within 20 ft. of work area?		Yes	No
iv) >350-500 kV within 25 ft. of work area?		Yes	No
v) >500-750 kV within 35 ft. or work area?		Yes	No
vi) >750-1000 kV within 45 ft. of work area?		Yes	No
M) Other:			
i) Evidence of linear asphalt or concrete repair?		Yes	No
ii) Evidence of linear ground subsidence or change in vegetation?		Yes	No
iii) Unmarked manholes or valve covers in work area?		Yes	No
iv) Warning signs (Call Before you Dig, Look Up, etc.) on or adjacent to site?		Yes	No
v) Utility color markings not illustrated in this checklist?	i.e. Purple	Yes	No
vii) Operating heavy equipment on unpaved/unimproved ground; review equipment route for shallow utilities crossing it and modify if necessary.		Yes	No
O) Utilities & Structures Checklist been reviewed by the PM or Designee		Yes	No*

PM or Designee Name: _____ * If no, STOP WORK, call PM

marked + Cleared UXO area with orange paint

pinned DPT point with wood stake

Name and Signature of person completing the checklist: _____

Date: _____

Do not perform mechanized intrusive work within 30 inches of a utility marking without receiving pre-approval by Corporate H&S.

ALL UTILITY STRIKES REQUIRE CORPORATE H&S NOTIFICATION (EMAIL OR CALL) WITH A CONFIRMED RESPONSE

Utilities and Structures Checklist

ARCADIS Design & Consultancy for natural and built assets

THIS FORM MUST BE COMPLETED IN ENTIRETY PRIOR TO BEGINNING ANY INTRUSIVE WORK

Project: Aberdeen Proving Ground Preliminary Assessment/Site Inspection
Project Number: 02118216.3005.8AC00
Form Completion Date: Form Expiration Date: 3/23/21
All utility markings must be refreshed ≤15 days when work is ongoing. (15 business days post form completion date)

Pre-Field Work

Required: One Call or "811" notified 48-72 hours in advance of work? #: 20-11358, 21-11506
Ticket Expiration Date 3/17/21 (Review State Requirements)
Utility companies notified during the One Call process See attached ticket

INFRA MAP | UXO (CARA) | | |
Miss Utility | | | |

List any other utilities requiring notification: None

Private Locator Contacted (Yes) No

Plan private utility clearance subcontractor assignments, areas, required clearance equipment, depth of clearance needed, types of utilities. When possible re-clear 811 markings to confirm utility locations.

Client provided utility maps or "as built" drawings showing utilities? (Yes) No

Field Work - This must be completed on site, by staff who have a minimum of one year of field experience in identifying utilities. Review Check list with PM or designee prior to beginning intrusive work.
Mechanized intrusive work in utility Tolerance Zone (<30-in.) requires pre-approval by Corporate H&S

List Soil Boring / Well IDs or Excavation Locations applicable to this clearance checklist:

APG-Boneyard - 1 - GW (1,2,3,4,5,6,7)
APG-Boneyard - 1 - SO - (0-2) (1,2,3,4,5,6,7)

3 Reliable Lines of Evidence Required Prior to Starting any Subsurface Intrusive Work
One Call/"811" (Reliable as a line of evidence when working in public right of way or easement)
Utility Markings Present: (Paint) (Pin flags/stakes) Other None

(Client Provided Maps/Drawings) **OR** Maps/Drawings requested but not provided
Client Clearance Name(s)/Affiliation(s) INFRA MAP
Interview(s): Name(s)/Affiliation(s)

Did person(s) interviewed indicate depths of any utilities in the subsurface?
(Yes, depths provided:) Did not know or refused to answer
Additional Comments: cleared zone is away from utility depths

Site Inspection (**Complete Page 2 & Photo Document Marked Utilities & Utility Structures**)
Public Records / Maps / As-Builts
Private Locator: (Name and Company) Soft Dig
Ground Penetrating Radar (GPR)
Radiofrequency (RF Loc)
Electromagnetic (EM)
Metal Detector

Soft Dig Methods
Termination Depth _____ ft. bgs
Potholing / Vacuum Extraction
Air knife Hydro knife
Probing
(Hand Auguring) ~5'

Tips for Successful Utility Location (H&S Standard Section 5.6):
1. Don't forget to look up (mark above grade utilities if warranted)
2. Be on-site with Private Utility Locators
3. Ask Private Locators to "confirm" other's markings
4. Select alternate/backup locations during clearance process
5. Mark out all known utilities. Leave nothing to question
6. No hammering - no pickaxes - no digging bars - no shortcutting
7. No excessive turning or downward force of hand augers/shovels
8. Utilities may run in or directly under asphalt/concrete
9. Clearing, grubbing, and heavy equipment may damage shallow utilities.
10. Is Spotter needed for Heavy Equipment near aboveground utilities?

Other: UXO (CARA)
Marine Locator: (Name and Company)

TRACK

Utilities and Structures Checklist

ARCADIS

During the site inspection look for the following: **("YES" requires additional investigation and the utility must be marked properly prior to beginning subsurface intrusive work):**

Site Inspection	Utility Color Codes	Present	
A) Natural gas line present (evidence of a gas meter)?	Yellow	Yes	No
i) Feeder Lines to buildings or homes?		Yes	No
B) Evidence of electric lines:	Red		
i) Conduits to ground from electric meter or along wall?		Yes	No
ii) Conduits from power poles running into ground?		Yes	No
iii) Light poles, electric devices with no overhead lines?		Yes	No
iv) Overhead electric lines present? Marked? (See Section L)		Yes	No
C) Evidence of sewer drains:	Green		
i) Restrooms or kitchen on site?		Yes	No
ii) Sewer cleanouts present?		Yes	No
iii) Combined sewer /storm lines or multiple sewer lines?		Yes	No
D) Evidence of water lines:	Blue		
i) Water meter on site or multiple water lines?		Yes	No
ii) Fire hydrants in vicinity of work?		Yes	No
iii) Irrigation systems? (Sprinkler heads, valve boxes, controls in building)		Yes	No
E) Evidence of storm drains:	Green		
i) Open curbside or slotted grate storm drains		Yes	No
ii) Gutter down spouts going into ground		Yes	No
F) Evidence of telecommunication lines:	Orange		
i) Fiber optic warning signs in areas?		Yes	No
ii) Aboveground cable boxes or housings or wires in work area? Marked?		Yes	No
G) Underground storage tanks:			
i) Tank pit present, tank vent present?		Yes	No
ii) Product lines running to dispensers/buildings?		Yes	No
H) Do utilities enter or exit existing structures/buildings?			
If Yes, confirm the utility markings outside of structure/building match up.		Yes	No
I) Proposed excavation marked in white?	White	Yes	No
J) Unclassed utilities / anomalies marked in pink?	Pink	Yes	No
K) **Overhead** Utilities/Communication Lines - **Look Up and MARK**:			
i) Overhead electrical conduit, pipe chases, cable trays, product lines?		Yes	No
ii) Overhead fire sprinkler system?		Yes	No
L) **Overhead** Power lines in or near the work area:			
i) < 50 kV within 10 ft. of work area?		Yes	No
ii) >50 - 200 kV within 15 ft. of work area?		Yes	No
iii) >200-350 kV within 20 ft. of work area?		Yes	No
iv) >350-500 kV within 25 ft. of work area?		Yes	No
v) >500-750 kV within 35 ft. or work area?		Yes	No
vi) >750-1000 kV within 45 ft. of work area?		Yes	No
M) Other:			
i) Evidence of linear asphalt or concrete repair?		Yes	No
ii) Evidence of linear ground subsidence or change in vegetation?		Yes	No
iii) Unmarked manholes or valve covers in work area?		Yes	No
iv) Warning signs (Call Before you Dig, Look Up, etc.) on or adjacent to site?		Yes	No
v) Utility color markings not illustrated in this checklist?	i.e. Purple	Yes	No
vii) Operating heavy equipment on unpaved/unimproved ground; review equipment route for shallow utilities crossing it and modify if necessary.		Yes	No
O) Utilities & Structures Checklist been reviewed by the PM or Designee		Yes	No*

PM or Designee Name: _____ * If no, STOP WORK, call PM

all cleared UXO area outlined in orange + wood stakes, borehole location is wood stake with pink flag

Name and Signature of person completing the checklist: _____

Date: _____

Do not perform mechanized intrusive work within 30 inches of a utility marking without receiving pre-approval by Corporate H&S.

ALL UTILITY STRIKES REQUIRE CORPORATE H&S NOTIFICATION (EMAIL OR CALL) WITH A CONFIRMED RESPONSE

Utilities and Structures Checklist

3/10

ARCADIS Design & Consultancy for natural and built assets

THIS FORM MUST BE COMPLETED IN ENTIRETY PRIOR TO BEGINNING ANY INTRUSIVE WORK

Project: Aberdeen Proving Ground Preliminary Assessment/Site Inspection
Project Number: 02118216.3005.8AC00
Form Completion Date: Form Expiration Date: 3/25/21
All utility markings must be refreshed ≤15 days when work is ongoing. (15 business days post form completion date)

Pre-Field Work

Required: One Call or "811" notified 48-72 hours in advance of work? #: 20-11453, 20-11451
Ticket Expiration Date 3/29/21 (Review State Requirements) 20-11453, 20-11455
Utility companies notified during the One Call process See attached ticket 20-11449, 20-11447
INFRA MAP | UXO (rare)
miss utility | Soft DIG
List any other utilities requiring notification: None

Private Locator Contacted (Yes) No

Plan private utility clearance subcontractor assignments, areas, required clearance equipment, depth of clearance needed, types of utilities. When possible re-clear 811 markings to confirm utility locations.

Client provided utility maps or "as built" drawings showing utilities? Yes (No)

Field Work - This must be completed on site, by staff who have a minimum of one year of field experience in identifying utilities. Review Check list with PM or designee prior to beginning intrusive work.
Mechanized intrusive work in utility Tolerance Zone (<30-in.) requires pre-approval by Corporate H&S

List Soil Boring / Well IDs or Excavation Locations applicable to this clearance checklist:

APG-BLDG-E4081-1-SO	APG-BLDG-E4081-2-SE	APG-NOBLE-ROAD-1-SO
APG-BLDG-E4081-2-SO	APG-TNK-FIRE-1-SE	APG-NOBLE-ROAD-2-SO
APG-BLDG-E4081-1-SE	APG-CASEY-YARD-1-SO	

3 Reliable Lines of Evidence Required Prior to Starting any Subsurface Intrusive Work
One Call/"811" (Reliable as a line of evidence when working in public right of way or easement)
Utility Markings Present: (Paint) (Pin flags/stakes) Other None

(Client Provided Maps/Drawings) **OR** Maps/Drawings requested but not provided
Client Clearance Name(s)/Affiliation(s) INFRA MAP
Interview(s): Name(s)/Affiliation(s)

Did person(s) interviewed indicate depths of any utilities in the subsurface?
(Yes, depths provided:) Did not know or refused to answer
Additional Comments: → cleared zones
730" away from utilities

Site Inspection (**Complete Page 2 & Photo Document Marked Utilities & Utility Structures**)
Public Records / Maps / As-Builts
Private Locator: (Name and Company) Soft DIG
Ground Penetrating Radar (GPR)
Radiofrequency (RF Loc)
Electromagnetic (EM)
Metal Detector

Soft Dig Methods
Termination Depth _____ ft. bgs
Potholing / Vacuum Extraction
Air knife Hydro knife
Probing
(Hand Auguring) >5'

Tips for Successful Utility Location (H&S Standard Section 5.6):
1. Don't forget to look up (mark above grade utilities if warranted)
2. Be on-site with Private Utility Locators
3. Ask Private Locators to "confirm" other's markings
4. Select alternate/backup locations during clearance process
5. Mark out all known utilities. Leave nothing to question
6. No hammering - no pickaxes - no digging bars - no shortcutting
7. No excessive turning or downward force of hand augers/shovels
8. Utilities may run in or directly under asphalt/concrete
9. Clearing, grubbing, and heavy equipment may damage shallow utilities.
10. Is Spotter needed for Heavy Equipment near aboveground utilities?

Other: UXO (rare)
Marine Locator: (Name and Company)

TRACK

Utilities and Structures Checklist

ARCADIS Design & Consultancy for natural and built assets

During the site inspection look for the following: **("YES" requires additional investigation and the utility must be marked properly prior to beginning subsurface intrusive work):**

Site Inspection	Utility Color Codes	Present	
A) Natural gas line present (evidence of a gas meter)?	Yellow	Yes	No
i) Feeder Lines to buildings or homes?		Yes	No
B) Evidence of electric lines:	Red		
i) Conduits to ground from electric meter or along wall?		Yes	No
ii) Conduits from power poles running into ground?		Yes	No
iii) Light poles, electric devices with no overhead lines?		Yes	No
iv) Overhead electric lines present? Marked? (See Section L)		Yes	No
C) Evidence of sewer drains:	Green		
i) Restrooms or kitchen on site?		Yes	No
ii) Sewer cleanouts present?		Yes	No
iii) Combined sewer /storm lines or multiple sewer lines?		Yes	No
D) Evidence of water lines:	Blue		
i) Water meter on site or multiple water lines?		Yes	No
ii) Fire hydrants in vicinity of work?		Yes	No
iii) Irrigation systems? (Sprinkler heads, valve boxes, controls in building)		Yes	No
E) Evidence of storm drains:	Green		
i) Open curbside or slotted grate storm drains		Yes	No
ii) Gutter down spouts going into ground		Yes	No
F) Evidence of telecommunication lines:	Orange		
i) Fiber optic warning signs in areas?		Yes	No
ii) Aboveground cable boxes or housings or wires in work area? Marked?		Yes	No
G) Underground storage tanks:			
i) Tank pit present, tank vent present?		Yes	No
ii) Product lines running to dispensers/buildings?		Yes	No
H) Do utilities enter or exit existing structures/buildings?			
If Yes, confirm the utility markings outside of structure/building match up.		Yes	No
I) Proposed excavation marked in white?	White	Yes	No
J) Unclassed utilities / anomalies marked in pink?	Pink	Yes	No
K) **Overhead** Utilities/Communication Lines - **Look Up and MARK:**			
i) Overhead electrical conduit, pipe chases, cable trays, product lines?		Yes	No
ii) Overhead fire sprinkler system?		Yes	No
L) **Overhead** Power lines in or near the work area:			
i) < 50 kV within 10 ft. of work area?		Yes	No
ii) >50 - 200 kV within 15 ft. of work area?		Yes	No
iii) >200-350 kV within 20 ft. of work area?		Yes	No
iv) >350-500 kV within 25 ft. of work area?		Yes	No
v) >500-750 kV within 35 ft. or work area?		Yes	No
vi) >750-1000 kV within 45 ft. of work area?		Yes	No
M) Other:			
i) Evidence of linear asphalt or concrete repair?		Yes	No
ii) Evidence of linear ground subsidence or change in vegetation?		Yes	No
iii) Unmarked manholes or valve covers in work area?		Yes	No
iv) Warning signs (Call Before you Dig, Look Up, etc.) on or adjacent to site?		Yes	No
v) Utility color markings not illustrated in this checklist?	i.e. Purple	Yes	No
vii) Operating heavy equipment on unpaved/unimproved ground; review equipment route for shallow utilities crossing it and modify if necessary.		Yes	No
O) Utilities & Structures Checklist been reviewed by the PM or Designee		Yes	No*

PM or Designee Name: _____ * If no, STOP WORK, call PM

orange paint 20' Box Cleared UXO area + Soft Dig/INFRA MAP Cleared Utility Zone

Pink flag is ideal boring location

Name and Signature of person completing the checklist: Dale Lynch

Date: 7/10/21

Do not perform mechanized intrusive work within 30 inches of a utility marking without receiving pre-approval by Corporate H&S.

ALL UTILITY STRIKES REQUIRE CORPORATE H&S NOTIFICATION (EMAIL OR CALL) WITH A CONFIRMED RESPONSE

Utilities and Structures Checklist

3/12

ARCADIS Design & Consultancy for natural and built assets

THIS FORM MUST BE COMPLETED IN ENTIRETY PRIOR TO BEGINNING ANY INTRUSIVE WORK

Project: Aberdeen Proving Ground Preliminary Assessment/Site Inspection
Project Number: 02118216.3005.8AC00
Form Completion Date: Form Expiration Date: 3/26/21
All utility markings must be refreshed ≤15 days when work is ongoing. (15 business days post form completion date)

Pre-Field Work

Required: One Call or "811" notified 48-72 hours in advance of work? #: 20-11381
Ticket Expiration Date 3/29/21 (Review State Requirements)
Utility companies notified during the One Call process See attached ticket

INFRA MAP | UXO (care) | | |
miss utility | Soft Dig | | |

List any other utilities requiring notification: None

Private Locator Contacted (Yes) No
Plan private utility clearance subcontractor assignments, areas, required clearance equipment, depth of clearance needed, types of utilities. When possible re-clear 811 markings to confirm utility locations.

Client provided utility maps or "as built" drawings showing utilities? Yes (No)

Field Work - This must be completed on site, by staff who have a minimum of one year of field experience in identifying utilities. Review Check list with PM or designee prior to beginning intrusive work.
Mechanized intrusive work in utility Tolerance Zone (<30-in.) requires pre-approval by Corporate H&S

List Soil Boring / Well IDs or Excavation Locations applicable to this clearance checklist:

APG-BLDG-2200-1-SO/GW | APG-BLDG-2308-1-GW
APG-BLDG-2200-2-SO

3 Reliable Lines of Evidence Required Prior to Starting any Subsurface Intrusive Work
One Call/"811" (Reliable as a line of evidence when working in public right of way or easement)
Utility Markings Present: (Paint) (Pin flags/stakes) Other None

~~Client Provided Maps/Drawings~~ **OR** Maps/Drawings requested but not provided
Client Clearance Interview(s): Name(s)/Affiliation(s) INFRA MAP

Did ~~person(s) interviewed~~ indicate depths of any utilities in the subsurface?
(Yes, depths provided:) Did not know or refused to answer
Additional Comments: Cleared zone >30" away from utility

Site Inspection (**Complete Page 2 & Photo Document Marked Utilities & Utility Structures**)
Public Records / Maps / As-Builts
Private Locator: (Name and Company) Soft Dig
Ground Penetrating Radar (GPR)
Radiofrequency (RF Loc)
Electromagnetic (EM)
Metal Detector

Soft Dig Methods
Termination Depth _____ft. bgs
Potholing / Vacuum Extraction
Air knife Hydro knife
~~Probing~~
(Hand Auguring) >5'

Other: UXO (care)
Marine Locator: (Name and Company)

Tips for Successful Utility Location (H&S Standard Section 5.6):
1. Don't forget to look up (mark above grade utilities if warranted)
2. Be on-site with Private Utility Locators
3. Ask Private Locators to "confirm" other's markings
4. Select alternate/backup locations during clearance process
5. Mark out all known utilities. Leave nothing to question
6. No hammering - no pickaxes - no digging bars - no shortcutting
7. No excessive turning or downward force of hand augers/shovels
8. Utilities may run in or directly under asphalt/concrete
9. Clearing, grubbing, and heavy equipment may damage shallow utilities.
10. Is Spotter needed for Heavy Equipment near aboveground utilities?

TRACK

Utilities and Structures Checklist

ARCADIS Design & Consultancy for natural and built assets

During the site inspection look for the following: **("YES" requires additional investigation and the utility must be marked properly prior to beginning subsurface intrusive work):**

Site Inspection	Utility Color Codes	Present	
A) Natural gas line present (evidence of a gas meter)?	Yellow	Yes	No
i) Feeder Lines to buildings or homes?		Yes	No
B) Evidence of electric lines:	Red		
i) Conduits to ground from electric meter or along wall?		Yes	No
ii) Conduits from power poles running into ground?		Yes	No
iii) Light poles, electric devices with no overhead lines?		Yes	No
iv) Overhead electric lines present? Marked? (See Section L)		Yes	No
C) Evidence of sewer drains:	Green		
i) Restrooms or kitchen on site?		Yes	No
ii) Sewer cleanouts present?		Yes	No
iii) Combined sewer /storm lines or multiple sewer lines?		Yes	No
D) Evidence of water lines:	Blue		
i) Water meter on site or multiple water lines?		Yes	No
ii) Fire hydrants in vicinity of work?		Yes	No
iii) Irrigation systems? (Sprinkler heads, valve boxes, controls in building)		Yes	No
E) Evidence of storm drains:	Green		
i) Open curbside or slotted grate storm drains		Yes	No
ii) Gutter down spouts going into ground		Yes	No
F) Evidence of telecommunication lines:	Orange		
i) Fiber optic warning signs in areas?		Yes	No
ii) Aboveground cable boxes or housings or wires in work area? Marked?		Yes	No
G) Underground storage tanks:			
i) Tank pit present, tank vent present?		Yes	No
ii) Product lines running to dispensers/buildings?		Yes	No
H) Do utilities enter or exit existing structures/buildings?			
If Yes, confirm the utility markings outside of structure/building match up.		Yes	No
I) Proposed excavation marked in white?	White	Yes	No
J) Unclassed utilities / anomalies marked in pink?	Pink	Yes	No
K) **Overhead** Utilities/Communication Lines - **Look Up and MARK:**			
i) Overhead electrical conduit, pipe chases, cable trays, product lines?		Yes	No
ii) Overhead fire sprinkler system?		Yes	No
L) **Overhead** Power lines in or near the work area:			
i) < 50 kV within 10 ft. of work area?		Yes	No
ii) >50 - 200 kV within 15 ft. of work area?		Yes	No
iii) >200-350 kV within 20 ft. of work area?		Yes	No
iv) >350-500 kV within 25 ft. of work area?		Yes	No
v) >500-750 kV within 35 ft. or work area?		Yes	No
vi) >750-1000 kV within 45 ft. of work area?		Yes	No
M) Other:			
i) Evidence of linear asphalt or concrete repair?		Yes	No
ii) Evidence of linear ground subsidence or change in vegetation?		Yes	No
iii) Unmarked manholes or valve covers in work area?		Yes	No
iv) Warning signs (Call Before you Dig, Look Up, etc.) on or adjacent to site?		Yes	No
v) Utility color markings not illustrated in this checklist?	i.e. Purple	Yes	No
vii) Operating heavy equipment on unpaved/unimproved ground; review equipment route for shallow utilities crossing it and modify if necessary.		Yes	No
O) Utilities & Structures Checklist been reviewed by the PM or Designee		Yes	No*

PM or Designee Name: _____ * If no, STOP WORK, call PM

orange paint is cleared UXO & utility area

pink flag is ideal Boring location

Name and Signature of person completing the checklist: Dale Lynch

Date: 3/11/21

Do not perform mechanized intrusive work within 30 inches of a utility marking without receiving pre-approval by Corporate H&S.

ALL UTILITY STRIKES REQUIRE CORPORATE H&S NOTIFICATION (EMAIL OR CALL) WITH A CONFIRMED RESPONSE

Utilities and Structures Checklist

3/15/21

ARCADIS Design & Consultancy for natural and built assets

THIS FORM MUST BE COMPLETED IN ENTIRETY PRIOR TO BEGINNING ANY INTRUSIVE WORK

Project: Aberdeen Proving Ground Preliminary Assessment/Site Inspection
Project Number: 02118216.3005.8AC00
Form Completion Date: Form Expiration Date: 3/29/21
All utility markings must be refreshed ≤15 days when work is ongoing. (15 business days post form completion date)

Pre-Field Work
Required: One Call or "811" notified 48-72 hours in advance of work? #: 20-11380 + 20-11402
Ticket Expiration Date (Review State Requirements) 20-110401
Utility companies notified during the One Call process See attached ticket 20-11404
INFRA MAP, VXO (Cora), Miss Utility, Soft Dig
List any other utilities requiring notification: None

Private Locator Contacted (Yes) No
Plan private utility clearance subcontractor assignments, areas, required clearance equipment, depth of clearance needed, types of utilities. When possible re-clear 811 markings to confirm utility locations.
Client provided utility maps or "as built" drawings showing utilities? (Yes) No

Field Work - This must be completed on site, by staff who have a minimum of one year of field experience in identifying utilities. Review Check list with PM or designee prior to beginning intrusive work.
Mechanized intrusive work in utility Tolerance Zone (<30-in.) requires pre-approval by Corporate H&S

List Soil Boring / Well IDs or Excavation Locations applicable to this clearance checklist:
APG-BLDG-300-1-GW — APG-BLDG-300-1-SO(0-2)
APG-BLDG-300-2-GW — APG-BLDG-300-2-SO-(0-2)

APG-AA5-1-GW
APG-AA5-1-SE
APG-PI-Minefield-1-GW
APG-PI-Minefield-1-SO
APG-PI-Minefield-2-SO
APG-PI-12-1-GW
APG-PI-12-1-SO
APG-PI-12-2-GW
APG-PI-12-2-SO

3 Reliable Lines of Evidence Required Prior to Starting any Subsurface Intrusive Work
One Call/"811" (Reliable as a line of evidence when working in public right of way or easement)
Utility Markings Present: (Paint) (Pin flags/stakes) Other None

Client Provided Maps/Drawings **OR** Maps/Drawings requested but not provided
Client Clearance Name(s)/Affiliation(s) INFRA MAP
Interview(s): Name(s)/Affiliation(s)

Did person(s) interviewed indicate depths of any utilities in the subsurface?
(Yes, depths provided:) Did not know or refused to answer
Additional Comments: Estimated by Soft Dig equipment

Site Inspection (**Complete Page 2 & Photo Document Marked Utilities & Utility Structures**)
Public Records / Maps / As-Builts
Private Locator: (Name and Company)
Ground Penetrating Radar (GPR)
Radiofrequency (RF Loc)
Electromagnetic (EM)
Metal Detector

Soft Dig Methods
Termination Depth _____ ft. bgs
Potholing / Vacuum Extraction
Air knife Hydro knife
Probing
(Hand Auguring) >5'

Tips for Successful Utility Location (H&S Standard Section 5.6):
1. Don't forget to look up (mark above grade utilities if warranted)
2. Be on-site with Private Utility Locators
3. Ask Private Locators to "confirm" other's markings
4. Select alternate/backup locations during clearance process
5. Mark out all known utilities. Leave nothing to question
6. No hammering - no pickaxes - no digging bars - no shortcutting
7. No excessive turning or downward force of hand augers/shovels
8. Utilities may run in or directly under asphalt/concrete
9. Clearing, grubbing, and heavy equipment may damage shallow utilities.
10. Is Spotter needed for Heavy Equipment near aboveground utilities?

Other: VXO (Locate)
Marine Locator: (Name and Company)

Utilities and Structures Checklist

ARCADIS Design & Consultancy for natural and built assets

During the site inspection look for the following: **("YES" requires additional investigation and the utility must be marked properly prior to beginning subsurface intrusive work):**

Site Inspection	Utility Color Codes	Present	
A) Natural gas line present (evidence of a gas meter)?	Yellow	Yes	No
i) Feeder Lines to buildings or homes?		Yes	No
B) Evidence of electric lines:	Red		
i) Conduits to ground from electric meter or along wall?		Yes	No
ii) Conduits from power poles running into ground?		Yes	No
iii) Light poles, electric devices with no overhead lines?		Yes	No
iv) Overhead electric lines present? Marked? (See Section L)		Yes	No
C) Evidence of sewer drains:	Green		
i) Restrooms or kitchen on site?		Yes	No
ii) Sewer cleanouts present?		Yes	No
iii) Combined sewer /storm lines or multiple sewer lines?		Yes	No
D) Evidence of water lines:	Blue		
i) Water meter on site or multiple water lines?		Yes	No
ii) Fire hydrants in vicinity of work?		Yes	No
iii) Irrigation systems? (Sprinkler heads, valve boxes, controls in building)		Yes	No
E) Evidence of storm drains:	Green		
i) Open curbside or slotted grate storm drains		Yes	No
ii) Gutter down spouts going into ground		Yes	No
F) Evidence of telecommunication lines:	Orange		
i) Fiber optic warning signs in areas?		Yes	No
ii) Aboveground cable boxes or housings or wires in work area? Marked?		Yes	No
G) Underground storage tanks:			
i) Tank pit present, tank vent present?		Yes	No
ii) Product lines running to dispensers/buildings?		Yes	No
H) Do utilities enter or exit existing structures/buildings?			
If Yes, confirm the utility markings outside of structure/building match up.		Yes	No
I) Proposed excavation marked in white?	White	Yes	No
J) Unclassed utilities / anomalies marked in pink?	Pink	Yes	No
K) **Overhead** Utilities/Communication Lines - **Look Up and MARK:**			
i) Overhead electrical conduit, pipe chases, cable trays, product lines?		Yes	No
ii) Overhead fire sprinkler system?		Yes	No
L) **Overhead** Power lines in or near the work area:			
i) < 50 kV within 10 ft. of work area?		Yes	No
ii) >50 - 200 kV within 15 ft. of work area?		Yes	No
iii) >200-350 kV within 20 ft. of work area?		Yes	No
iv) >350-500 kV within 25 ft. of work area?		Yes	No
v) >500-750 kV within 35 ft. or work area?		Yes	No
vi) >750-1000 kV within 45 ft. of work area?		Yes	No
M) Other:			
i) Evidence of linear asphalt or concrete repair?		Yes	No
ii) Evidence of linear ground subsidence or change in vegetation?		Yes	No
iii) Unmarked manholes or valve covers in work area?		Yes	No
iv) Warning signs (Call Before you Dig, Look Up, etc.) on or adjacent to site?		Yes	No
v) Utility color markings not illustrated in this checklist?	i.e. Purple	Yes	No
vii) Operating heavy equipment on unpaved/unimproved ground; review equipment route for shallow utilities crossing it and modify if necessary.		Yes	No
O) Utilities & Structures Checklist been reviewed by the PM or Designee		Yes	No*

PM or Designee Name: _____ * If no, STOP WORK, call PM

Name and Signature of person completing the checklist: Dale Lynch

Date: _____

Do not perform mechanized intrusive work within 30 inches of a utility marking without receiving pre-approval by Corporate H&S.

ALL UTILITY STRIKES REQUIRE CORPORATE H&S NOTIFICATION (EMAIL OR CALL) WITH A CONFIRMED RESPONSE

Cleared UXO + utility Areas by Soft Dig + UXO (cam)

Ideal boring location

Utilities and Structures Checklist

ARCADIS Design & Consultancy for natural and built assets

3/16/21

THIS FORM MUST BE COMPLETED IN ENTIRETY PRIOR TO BEGINNING ANY INTRUSIVE WORK

Project: Aberdeen Proving Ground Preliminary Assessment/Site Inspection
Project Number: 02118216.3005.8AC00
Form Completion Date: Form Expiration Date: 3/30/21
All utility markings must be refreshed ≤15 days when work is ongoing. (15 business days post form completion date)

Pre-Field Work

Required: One Call or "811" notified 48-72 hours in advance of work? #:
Ticket Expiration Date (Review State Requirements)
Utility companies notified during the One Call process See attached ticket

INFRA MAP — VXO (cave)
Miss Utility — Soft Dig
List any other utilities requiring notification: None

Private Locator Contacted (Yes) No

Plan private utility clearance subcontractor assignments, areas, required clearance equipment, depth of clearance needed, types of utilities. When possible re-clear 811 markings to confirm utility locations.

Client provided utility maps or "as built" drawings showing utilities? (Yes) No

Field Work - This must be completed on site, by staff who have a minimum of one year of field experience in identifying utilities. Review Check list with PM or designee prior to beginning intrusive work.
Mechanized intrusive work in utility Tolerance Zone (<30-in.) requires pre-approval by Corporate H&S

List Soil Boring / Well IDs or Excavation Locations applicable to this clearance checklist:

APG-EDS-1-GW APG-FUZE-1-SW APG-BAF-S6-1-GW
APG-FUZE-1-GW APG-FUZE-1-SE APG-BAF-S6-1-SO

3 Reliable Lines of Evidence Required Prior to Starting any Subsurface Intrusive Work
One Call/"811" (Reliable as a line of evidence when working in public right of way or easement)
Utility Markings Present: Paint Pin flags/stakes Other None

Client Provided Maps/Drawings **OR** Maps/Drawings requested but not provided
Client Clearance Name(s)/Affiliation(s)
Interview(s): Name(s)/Affiliation(s)

~~Did person(s) interviewed~~ indicate depths of any utilities in the subsurface?
(Yes, depths provided:) Did not know or refused to answer
Additional Comments: estimated by soft dig

Site Inspection (**Complete Page 2 & Photo Document Marked Utilities & Utility Structures**)
Public Records / Maps / As-Builts
Private Locator: (Name and Company) Soft Dig
Ground Penetrating Radar (GPR)
Radiofrequency (RF Loc)
Electromagnetic (EM)
Metal Detector

Soft Dig Methods
Termination Depth _____ft. bgs
Potholing / Vacuum Extraction
Air knife Hydro knife
Probing
(Hand Auguring) >5'
Other: VXO (cave)

if Hand Auger Hit Refusal

Marine Locator: (Name and Company)

Tips for Successful Utility Location (H&S Standard Section 5.6):
1. Don't forget to look up (mark above grade utilities if warranted)
2. Be on-site with Private Utility Locators
3. Ask Private Locators to "confirm" other's markings
4. Select alternate/backup locations during clearance process
5. Mark out all known utilities. Leave nothing to question
6. No hammering - no pickaxes - no digging bars - no shortcutting
7. No excessive turning or downward force of hand augers/shovels
8. Utilities may run in or directly under asphalt/concrete
9. Clearing, grubbing, and heavy equipment may damage shallow utilities.
10. Is Spotter needed for Heavy Equipment near aboveground utilities?

Utilities and Structures Checklist

ARCADIS Design & Consultancy for natural and built assets

During the site inspection look for the following: **("YES" requires additional investigation and the utility must be marked properly prior to beginning subsurface intrusive work):**

Site Inspection	Utility Color Codes	Present	
A) Natural gas line present (evidence of a gas meter)?	Yellow	Yes	No
i) Feeder Lines to buildings or homes?		Yes	No
B) Evidence of electric lines:	Red		
i) Conduits to ground from electric meter or along wall?		Yes	No
ii) Conduits from power poles running into ground?		Yes	No
iii) Light poles, electric devices with no overhead lines?		Yes	No
iv) Overhead electric lines present? Marked? (See Section L)		Yes	No
C) Evidence of sewer drains:	Green		
i) Restrooms or kitchen on site?		Yes	No
ii) Sewer cleanouts present?		Yes	No
iii) Combined sewer /storm lines or multiple sewer lines?		Yes	No
D) Evidence of water lines:	Blue		
i) Water meter on site or multiple water lines?		Yes	No
ii) Fire hydrants in vicinity of work?		Yes	No
iii) Irrigation systems? (Sprinkler heads, valve boxes, controls in building)		Yes	No
E) Evidence of storm drains:	Green		
i) Open curbside or slotted grate storm drains		Yes	No
ii) Gutter down spouts going into ground		Yes	No
F) Evidence of telecommunication lines:	Orange		
i) Fiber optic warning signs in areas?		Yes	No
ii) Aboveground cable boxes or housings or wires in work area? Marked?		Yes	No
G) Underground storage tanks:			
i) Tank pit present, tank vent present?		Yes	No
ii) Product lines running to dispensers/buildings?		Yes	No
H) Do utilities enter or exit existing structures/buildings?			
If Yes, confirm the utility markings outside of structure/building match up.		Yes	No
I) Proposed excavation marked in white?	White	Yes	No
J) Unclassed utilities / anomalies marked in pink?	Pink	Yes	No
K) **Overhead** Utilities/Communication Lines - **Look Up and MARK:**			
i) Overhead electrical conduit, pipe chases, cable trays, product lines?		Yes	No
ii) Overhead fire sprinkler system?		Yes	No
L) **Overhead** Power lines in or near the work area:			
i) < 50 kV within 10 ft. of work area?		Yes	No
ii) >50 - 200 kV within 15 ft. of work area?		Yes	No
iii) >200-350 kV within 20 ft. of work area?		Yes	No
iv) >350-500 kV within 25 ft. of work area?		Yes	No
v) >500-750 kV within 35 ft. or work area?		Yes	No
vi) >750-1000 kV within 45 ft. of work area?		Yes	No
M) Other:			
i) Evidence of linear asphalt or concrete repair?		Yes	No
ii) Evidence of linear ground subsidence or change in vegetation?		Yes	No
iii) Unmarked manholes or valve covers in work area?		Yes	No
iv) Warning signs (Call Before you Dig, Look Up, etc.) on or adjacent to site?		Yes	No
v) Utility color markings not illustrated in this checklist?	i.e. Purple	Yes	No
vii) Operating heavy equipment on unpaved/unimproved ground; review equipment route for shallow utilities crossing it and modify if necessary.		Yes	No
O) Utilities & Structures Checklist been reviewed by the PM or Designee		Yes	No*

PM or Designee Name: _____ * If no, STOP WORK, call PM

Name and Signature of person completing the checklist: _____

Date: _____ Dave Lynch

Do not perform mechanized intrusive work within 30 inches of a utility marking without receiving pre-approval by Corporate H&S.

ALL UTILITY STRIKES REQUIRE CORPORATE H&S NOTIFICATION (EMAIL OR CALL) WITH A CONFIRMED RESPONSE

UXO Cleared area & utilities

Ideal location for borehole

Utilities and Structures Checklist

ARCADIS Design & Consultancy for natural and built assets

3/17

THIS FORM MUST BE COMPLETED IN ENTIRETY PRIOR TO BEGINNING ANY INTRUSIVE WORK

Project: Aberdeen Proving Ground Preliminary Assessment/Site Inspection
Project Number: 02118216.3005.8AC00
Form Completion Date: Form Expiration Date: 3/30/21
All utility markings must be refreshed ≤15 days when work is ongoing. (15 business days post form completion date)

Pre-Field Work

Required: One Call or "811" notified 48-72 hours in advance of work? #: 20-11449, 20-11450
Ticket Expiration Date _____ (Review State Requirements) 20-11453 20-11452
Utility companies notified during the One Call process See attached ticket

INFRA MAP	UXO (Long)			20-11445
Miss Utility	Soft Dig			

List any other utilities requiring notification: None

Private Locator Contacted (Yes) No

Plan private utility clearance subcontractor assignments, areas, required clearance equipment, depth of clearance needed, types of utilities. When possible re-clear 811 markings to confirm utility locations.

Client provided utility maps or "as built" drawings showing utilities? (Yes) No

Field Work - This must be completed on site, by staff who have a minimum of one year of field experience in identifying utilities. Review Check list with PM or designee prior to beginning intrusive work. APG-BLDG-E5180-1-SO/GW
Mechanized intrusive work in utility Tolerance Zone (<30-in.) requires pre-approval by Corporate H&S

List Soil Boring / Well IDs or Excavation Locations applicable to this clearance checklist:
APG-Noble-Road-1-GW APG-BLDG-E4040-1-GW
APG-BLDG-E4081-1-GW APG-WEIDE-1-GW/SO
APG-BLDG-E5180-2-GW

3 Reliable Lines of Evidence Required Prior to Starting any Subsurface Intrusive Work
One Call/"811" (Reliable as a line of evidence when working in public right of way or easement)
Utility Markings Present: (Paint) (Pin flags/stakes) Other None

Client Provided Maps/Drawings **OR** Maps/Drawings requested but not provided
Client Clearance Interview(s): Name(s)/Affiliation(s) _____
Name(s)/Affiliation(s) _____

Did person(s) interviewed indicate depths of any utilities in the subsurface?
(Yes, depths provided:) Did not know or refused to answer
Additional Comments: estimated by soft dig

Site Inspection (**Complete Page 2 & Photo Document Marked Utilities & Utility Structures**)
Public Records / Maps / As-Builts
Private Locator: (Name and Company) Soft Dig
Ground Penetrating Radar (GPR)
Radiofrequency (RF Loc)
Electromagnetic (EM)
Metal Detector

Soft Dig Methods
Termination Depth _____ ft. bgs
Potholing / Vacuum Extraction
Air knife Hydro knife
Probing
(Hand Auguring) >5'

If Hand auger hits refusal

Other:
Marine Locator: (Name and Company)

Tips for Successful Utility Location (H&S Standard Section 5.6):
1. Don't forget to look up (mark above grade utilities if warranted)
2. Be on-site with Private Utility Locators
3. Ask Private Locators to "confirm" other's markings
4. Select alternate/backup locations during clearance process
5. Mark out all known utilities. Leave nothing to question
6. No hammering - no pickaxes - no digging bars - no shortcutting
7. No excessive turning or downward force of hand augers/shovels
8. Utilities may run in or directly under asphalt/concrete
9. Clearing, grubbing, and heavy equipment may damage shallow utilities.
10. Is Spotter needed for Heavy Equipment near aboveground utilities?

TRACK

Utilities and Structures Checklist

ARCADIS Design & Consultancy for natural and built assets

During the site inspection look for the following: **("YES" requires additional investigation and the utility must be marked properly prior to beginning subsurface intrusive work):**

Site Inspection	Utility Color Codes	Present	
A) Natural gas line present (evidence of a gas meter)?	Yellow	Yes	No
i) Feeder Lines to buildings or homes?		Yes	No
B) Evidence of electric lines:	Red		
i) Conduits to ground from electric meter or along wall?		Yes	No
ii) Conduits from power poles running into ground?		Yes	No
iii) Light poles, electric devices with no overhead lines?		Yes	No
iv) Overhead electric lines present? Marked? (See Section L)		Yes	No
C) Evidence of sewer drains:	Green		
i) Restrooms or kitchen on site?		Yes	No
ii) Sewer cleanouts present?		Yes	No
iii) Combined sewer /storm lines or multiple sewer lines?		Yes	No
D) Evidence of water lines:	Blue		
i) Water meter on site or multiple water lines?		Yes	No
ii) Fire hydrants in vicinity of work?		Yes	No
iii) Irrigation systems? (Sprinkler heads, valve boxes, controls in building)		Yes	No
E) Evidence of storm drains:	Green		
i) Open curbside or slotted grate storm drains		Yes	No
ii) Gutter down spouts going into ground		Yes	No
F) Evidence of telecommunication lines:	Orange		
i) Fiber optic warning signs in areas?		Yes	No
ii) Aboveground cable boxes or housings or wires in work area? Marked?		Yes	No
G) Underground storage tanks:			
i) Tank pit present, tank vent present?		Yes	No
ii) Product lines running to dispensers/buildings?		Yes	No
H) Do utilities enter or exit existing structures/buildings?			
If Yes, confirm the utility markings outside of structure/building match up.		Yes	No
I) Proposed excavation marked in white?	White	Yes	No
J) Unclassed utilities / anomalies marked in pink?	Pink	Yes	No
K) **Overhead** Utilities/Communication Lines - **Look Up and MARK**:			
i) Overhead electrical conduit, pipe chases, cable trays, product lines?		Yes	No
ii) Overhead fire sprinkler system?		Yes	No
L) **Overhead** Power lines in or near the work area:			
i) < 50 kV within 10 ft. of work area?		Yes	No
ii) >50 - 200 kV within 15 ft. of work area?		Yes	No
iii) >200-350 kV within 20 ft. of work area?		Yes	No
iv) >350-500 kV within 25 ft. of work area?		Yes	No
v) >500-750 kV within 35 ft. or work area?		Yes	No
vi) >750-1000 kV within 45 ft. of work area?		Yes	No
M) Other:			
i) Evidence of linear asphalt or concrete repair?		Yes	No
ii) Evidence of linear ground subsidence or change in vegetation?		Yes	No
iii) Unmarked manholes or valve covers in work area?		Yes	No
iv) Warning signs (Call Before you Dig, Look Up, etc.) on or adjacent to site?		Yes	No
v) Utility color markings not illustrated in this checklist?	i.e. Purple	Yes	No
vii) Operating heavy equipment on unpaved/unimproved ground; review equipment route for shallow utilities crossing it and modify if necessary.		Yes	No
O) Utilities & Structures Checklist been reviewed by the PM or Designee		Yes	No*

PM or Designee Name: _____ * If no, STOP WORK, call PM

Name and Signature of person completing the checklist: _____

Date: _____

Do not perform mechanized intrusive work within 30 inches of a utility marking without receiving pre-approval by Corporate H&S.

ALL UTILITY STRIKES REQUIRE CORPORATE H&S NOTIFICATION (EMAIL OR CALL) WITH A CONFIRMED RESPONSE

Cleared AREA for UXO & utilities

Ideal location for borehole

Utilities and Structures Checklist

ARCADIS Design & Consultancy for natural and built assets

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iii) Light poles, electric devices with no overhead lines?		Yes	No
iv) Overhead electric lines present? Marked? (See Section L)		Yes	No
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D) Evidence of water lines:	Blue		
i) Water meter on site or multiple water lines?		Yes	No
ii) Fire hydrants in vicinity of work?		Yes	No
iii) Irrigation systems? (Sprinkler heads, valve boxes, controls in building)		Yes	No
E) Evidence of storm drains:	Green		
i) Open curbside or slotted grate storm drains		Yes	No
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Utilities and Structures Checklist

3/19/21

ARCADIS Design & Consultancy for natural and built assets

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Pre-Field Work

Required: One Call or "811" notified 48-72 hours in advance of work? #: 20-11449
Ticket Expiration Date (Review State Requirements) 20-11450
Utility companies notified during the One Call process See attached ticket 20-11447

INFRA MAP	UXO (cont.)		
Mill Utility	Soft Dig		

List any other utilities requiring notification: None

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List Soil Boring / Well IDs or Excavation Locations applicable to this clearance checklist:
APH-BLDG-E4040-1-GW/SO APH-CASEY-YARD-1-GW
APH-G-Street-1-GW/SO

3 Reliable Lines of Evidence Required Prior to Starting any Subsurface Intrusive Work
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Metal Detector

Soft Dig Methods
Termination Depth _____ft. bgs
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Air knife Hydro knife
Probing
(Hand Auguring) 75'
Other: UXO (cont.)
Marine Locator: (Name and Company)

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