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Physical Demands Analysis

Underground Pipe Layer

Prepared for:
Alberta Construction Association

Job Title:	Underground Pipe Layer	Assessment Location:	Main Street, Airdrie Alberta	Data Collection Date:	July 23, 2020
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Completed By:	Joanna Taets Von Amerongen	Submitted on:	October 13, 2020
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Disclaimer:	The Physical Demands noted in this report may vary depending on company and location. Please contact the company directly to confirm this physical demands analysis is an accurate representation of the specific job title for the specific location.
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Work Schedule:	Shift Duration: 6 days/week, 10 hours/day; depending on volume and weather Break Schedule: Total of 1 hour break per day / 2-15 minute breaks with 1-30 minute lunch break. Shift Rotation: Day shifts: 7:00 am to 5:00 pm; Night shifts: 7:00 pm to 7:00 am On call is required: No Overtime required: Yes; depending on volume and weather
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Education / Experience:	Education required: Not applicable Hours required for position: Not applicable Tickets that may be required (not limited to): Confined Space, First Aid, Rigging, Mask Fitting, and Basic Safety Orientation (BSO), RSTS with WHMIS 2015.
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Labour Provider:	N/A
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Job Overview:	As an Underground Pipe Layer, the worker is required to help the excavator lay pipe underground within trench walls, guiding the pipe down to the correct location and securing the pipe.		
	% of shift	Job Task	Task Description
	1%	Individual Field Level Risk Assessment (IFLRA)	<ul style="list-style-type: none">Identifying hazards, exposures, plans for hazards and exposures, personal protective equipment (PPE) required.
	1-2%	Tailgate Meeting	<ul style="list-style-type: none">The crew's plan for the day including progress on site thus far, plan for remaining route and the day.
	1-2%	Site Preparation	<ul style="list-style-type: none">Removing equipment and tools from nearby site storage, ensuring proper site measurements are reviewed with crew and review tasks for the day. Prepare site for day's work.

	93-96%	Underground Pipe Laying	<ul style="list-style-type: none"> With help from the excavator, move trench walls and ladder, measure appropriate placement of pipe, lay pipe down in correct position/placement, checking pipe joints and secure pipe using pea gravel.
	1-2%	Site Clean up	<ul style="list-style-type: none"> Once shift is complete, clean site by placing equipment and tools in nearby site storage, ensuring all equipment and tools are locked and secure.

Equipment/ Tools:	<ul style="list-style-type: none"> Pick (8 lbs.) Surveying Equipment (15 lbs.) Sledge Hammer (3 lbs.) Ladder (46 lbs.) Leveller (2 lbs.) Shovel (4 lbs.) Crowbar/Prybar (18 lbs.) Grease Bucket (10 lbs.) Cable Slings Trench Walls/Box Bucket of Pins - approximately 5 pins (16 lbs.) Cut-off saw
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Exposures / Environment:	<ul style="list-style-type: none"> Dust Heat Wind Cold
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Personal Protective Equipment Required:	<ul style="list-style-type: none"> Hard hat Steel toed boots Gloves Safety goggles Safety vest Long pants
Personal Protective Equipment as Required:	<ul style="list-style-type: none"> Masks worn within 6 feet due to COVID Face shields

NOC STRENGTH LEVEL KEY	
Strength Level	Definition
Limited (Lim)	Up to 5 kg (11 pounds)
Light (L)	5 kg to 10 kg (11 – 22 pounds)
Medium (M)	10 kg to 20 kg (22 – 44 pounds)
Heavy (H)	Greater than 20 kg (44 pounds plus)

****Strength Level Key based on the National Occupational Classification***

FREQUENCY KEY		
Frequency	% of Workday	Hours – Based on 8 hour Workday
Not Required (N/R)	0%	0
Rarely (R)	1 – 5%	<25 min/day
Occasionally (O)	6 – 33%	25 min to 2 hours 40 min/day
Frequently (F)	34 – 66%	2 hours 41 min to 5 hours 17 min/day
Constantly (C)	67 – 100%	5 hours 18 min to 8 hours/day

****Frequency Key based on WCB Alberta Recommendations***

Job Demand	Frequency / NOC Strength Level					Details/ Measurements
	N/R	R	O	F	C	
Material Handling:						
Floor to Waist Level Lifting			Up to 46 lbs.			Lifting shovel, leveller, prybar/crowbar, pick, ladder, cut-off saw, cable slings, grease, etc. around site and into trench box, vice versa, shovelling pea gravel.
Knee to Waist Level Lifting	X					Not required
Waist to Waist Level Lifting	X					Not required
Waist to Chest Level Lifting	X					Not required
Waist to Shoulder Level Lifting		Up to 46 lbs.				Lifting ladder and surveying equipment from trench box to coworkers above (depending on depth of trench box).
Waist to Overhead Level Lifting			Up to 46 lbs.			Lifting ladder and surveying equipment from trench box to coworkers above (depending on depth of trench box).
Front Carry			Up to 46 lbs.			Carrying ladder with coworker and/or bucket of pins, bucket of grease, surveying equipment, sledge hammer, leveller, shovel, cable slings, etc. . into trench box (dependent on workers preferred method of carrying), during site preparation and clean up.
Right / Left-handed Carry (Dominant Hand)			Up to 46 lbs.			Carrying ladder with coworker and/or bucket of pins, bucket of grease, surveying equipment, sledge hammer, leveller, shovel, cable slings, etc. . into trench box (dependent on workers preferred method of carrying).
Shoulder Carry			Up to 50 lbs.			Carrying surveying equipment, sledge hammer, leveller, shovel, cable slings, etc. within site, during site preparation and clean up.

Static Pushing/Pulling (Force)		Heavy NOC Level				Positioning pipe in trench box.
Dynamic Pushing/Pulling (Force)				Up to Heavy NOC Level		Pushing pins into trench box using sledge hammer, positioning lighter PVC piping, redistributing pea gravel.

Job Demand	Frequency					Details/Measurements
	N/R	R	O	F	C	
Upper Extremity Work:						
Hand Gripping					X	Moving and adjusting trench boxes with excavator, cut-off saw while cutting pipe , laying and adjusting pipe positioning with excavator, hammering pins into trench box, using surveying equipment to lay pipe, using various equipment, site preparation and site clean up, shovelling pea gravel around pipe.
Pinch Gripping	X					Not required
Upper Extremity Coordination					X	Moving and adjusting trench boxes with excavator, laying and adjusting pipe positioning with excavator, hammering pins into trench box, retrieving and using surveying equipment to lay pipe, using various equipment, site preparation and site clean up, shovelling pea gravel around pipe.
Reaching Forward				X		Moving and adjusting trench boxes with excavator, laying and adjusting pipe positioning with excavator, hammering pins into trench box, retrieving and using surveying equipment to lay pipe, using various equipment, site preparation and site clean up, shovelling pea gravel around pipe.
Overhead Shoulder Level Reaching			X			With assistance from excavator: initially guiding pipe into placement, initially placing trench walls, retrieving surveying equipment and ladder from coworker above.
Below Shoulder Level Reaching				X		Moving and adjusting trench boxes with excavator, laying and adjusting pipe positioning with excavator, hammering pins into trench box, using surveying equipment to lay pipe, using various equipment, site preparation and site clean up, shovelling pea gravel around pipe.

Throwing		X				Safely passing various equipment (up to 15 lbs.) to coworkers across the site (approximately 6-7 feet).
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Job Demand	Frequency					Details/Measurements
	N/R	R	O	F	C	
Positional Work:						
Trunk Flexion (Bending)				X		Checking pipe placement, level of pipe, shovelling pea gravel, placing pins into trench walls, installing pipe, etc.
Trunk Rotation (Twisting)				X		Checking pipe placement, level of pipe, shovelling pea gravel, placing pins into trench walls, installing pipe, etc.
Kneeling		X				Checking pipe joints.
Crawling		X				Checking pipe joints.
Crouching	X					Not required
Squatting	X					Not required
Neck Flexion				X		Checking surroundings on site, communicating with coworkers below, laying pipe, checking pipe joints, installing trench box, using various equipment in trenches to lay pipe, shovelling pea gravel.
Neck Extension				X		Checking site surroundings, communicating with coworkers above and excavator, initial phases of laying pipe and trench box, checking pipe joints, using surveying equipment, etc.
Neck Rotation			X			Checking surroundings on site, communicating with coworkers below and excavator, laying pipe, checking pipe joints, installing trench box, using various equipment in trenches to lay pipe, shovelling pea gravel.

Job Demand	Frequency					Details/Measurements
	N/R	R	O	F	C	
Static Work:						
Sitting		X				During breaks
Static Standing			X			Waiting for excavator to transport pipe and pea gravel into trench box, communicating with crew, tailgate meeting, IFLRA.
Balancing				X		On site in trench box, on gravel and dirt, ladder climbing, on pea gravel, etc.

Job Demand	Frequency					Details/Measurements
	N/R	R	O	F	C	
Ambulation:						
Walking: Level Surfaces			X			On site; concrete or asphalt.
Walking: Uneven Surfaces				X		On site in trench box, gravel and dirt throughout site, pea gravel, in trench box, etc.
Walking: Slopes		X				On site near underground opening.
Jumping	X					Not required
Running	X					Not required

Job Demand	Frequency					Details/Measurements
	N/R	R	O	F	C	
Climbing:						
Stairs	X					Not required
Ladder			X			Into/out of trench box.
Other	X					Not required

PHOTOS OF TASKS AND WORK ENVIRONMENT

Figure 1: Trench box with Underground Pipe Layers to enter/exit using ladder.



Figure 2: Underground Pipe Layers carrying ladder from trench box.



Figure 3: Direct view in trench box with pipe and pea gravel.



If you have any questions, and/or would like to discuss this assessment and report further, I can be reached at (780) 429-4761.

Sincerely,

Physical Demands Analysis
Job Title: Underground Pipe Layer
Date Prepared: August 18, 2020
Prepared for: Alberta Construction Association



Joanna Taets Von Amerongen, BKin
Kinesiologist

SITE SPECIFIC JOB DEMAND ADDITIONS:

Job Demand	Frequency					Details/Measurements
	N/R	R	O	F	C	
Site Specific Job Demand:						
Writing		X				Filling out IFLRA.

Validation Agreement

Job Title:	Underground Pipe Layer
Data Collection Date:	July 23, 2020

We the undersigned have reviewed the Physical Demands Analysis for this position and agree that the physical demands documented in this report are representative of the true demands of the tasks associated with the job title as assessed on the date listed above.

Completed by:	Joanna Taets Von Amerongen, BKin	Lifemark Clinician Name
Approved by:	Matt Cooper, Paul Parsons	Management Representative
Approved by:		Worker Representative
Approved by:		Labour Provider Representative