

ATTACHMENT 3-B: TYPICAL CONSTRUCTION EQUIPMENT BY ACTIVITY

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Project Component	Activity	Approximate Number of People	Equipment	Use	Approximate Quantity	Approximate Duration On Site (8-hour days)	Average Duration of Use (hours per day)
ECO Substation	Site Development	30	¾-ton or 1-ton pickup truck	Transport and support construction personnel	10	130	2
		2	Maintenance truck	Maintain and refuel equipment	1	130	2
		3	Bulldozer	Grade pads and access roads	3	100	8
		2	Road grader	Construct, maintain, and upgrade roads	2	100	6
		5	Scraper	Grade pads and access roads	5	100	8
		2	Compactor	Grade pads and access roads	3	100	8
		3	Loader	Load dump trucks and stockpile	2	100	6
		2	Backhoe	Excavate	2	100	5
		1	Rock truck	Move rock	1	36	6
		1	Rock crusher	Crush rock	1	36	6
		3	Water truck	Suppress dust	3	200	6

Attachment 3-B: Typical Construction Equipment by Activity

Project Component	Activity	Approximate Number of People	Equipment	Use	Approximate Quantity	Approximate Duration On Site (8-hour days)	Average Duration of Use (hours per day)
ECO Substation (continued)	Site Development (continued)	20	Haul truck	Transport Class II import material	20	50	10
		2	Concrete truck	Place concrete	2	25	3
		30	Water truck	Transport water	30	100	2
		8	Asphalt paver	Pave access roads	2	20	6
		1	Asphalt emulsion truck	Pave access roads	1	20	6
		3	Vibrating roller	Compact soil and asphalt	3	20	6
		5	Asphalt Haul Trucks	Transport asphalt	5	20	6
		30	¾-ton or 1-ton pickup truck	Transport and support construction personnel	10	150	2
	Below Grade Construction	10	Concrete truck	Pour concrete	10	75	3
		1	Maintenance truck	Maintain and refuel equipment	1	150	2
		6	Drill rig	Drill pier foundations	2	40	6
		3	Backhoe	Excavate pad foundations	3	80	6

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ECO Substation (continued)	Below Grade Construction (continued)	4	Fork lift/skid steer	Move rebar, equipment, masonry, and other materials	4	75	6
		6	Light duty crane	Place material and set steel	2	60	4
		6	Trencher	Install grounding	2	60	7
		6	Backhoe	Duct bank and conduit installation	2	60	7
	1	Water truck	Suppress dust	1	150	6	
	2	Compactor - handheld	Compact soil	2	80	6	
	20	¾-ton or 1-ton pickup truck	Transport and support construction personnel	10	150	2	
	1	Maintenance truck	Maintain and refuel equipment	1	150	2	
	15	Bucket truck/manlift	Set steel and install equipment	5	100	6	
	6	Crane	Place material and set steel	2	100	4	
	Above Grade Construction (continued)						

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ECO Substation (continued)	Above Grade Construction (continued)	6	Boom Truck	Place material and set steel	2	100	6
		2	Forklift	Unload and move material	2	100	6
	Communication Equipment Installation	4	Bucket truck	Set steel and install equipment	2	20	7
		2	Crane	Place material and set steel	2	20	7
	Testing and Commissioning	8	¾-ton or 1-ton pickup truck	Transport and support construction personnel	4	40	2
		2	Heavy Van	Transport and support construction personnel	2	40	2
		2	Manlift	Outdoor check out of equipment	2	30	4
		1	Diesel generator (500 kW)	Extract and remove oil	1	5	24
		3	Crane	Extract and remove oil	1	5	5

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SWPL Loop-In	General Construction	4	¾-ton or 1-ton pickup truck	Transport construction personnel	2	60	2	
		1	Maintenance truck	Maintain and refuel equipment	1	40	2	
	Access Roads	1	Bulldozer	Equipment access	1	10	4	
		3	Concrete truck	Pour Concrete	3	10	3	
	Install Foundations	2	Drill rig	Foundation Construction	1	10	6	
		2	Backhoe	Foundation Construction	2	10	6	
	Tower Installation and Conductor Stringing		4	Large crane	Tower Erection	2	10	6
			12	Bucket truck	Tower Erection and Conductor Installation	4	30	8
		4	Puller and tensioner	Conductor Installation	2	20	8	
		4	Reel trailer	Conductor Installation	2	20	8	

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Project Component	Activity	Approximate Number of People	Equipment	Use	Approximate Quantity	Approximate Duration On Site (8-hour days)	Average Duration of Use (hours per day)
138 kV Transmission Line	General Construction	2	Helicopter	Transport and install structures and conductor	1	60	4
		3	2-ton flatbed truck or flatbed boom truck	Haul and unload materials	2	60	4
		3	Rigging truck	Haul tools and equipment	3	60	4
		2	Mechanic truck	Service and repair equipment	2	60	4
		12	Aerial lift truck	Access poles, string conductor, and other uses	3	60	5
		2	Shop van	Store tools	2	90	4
		4	Small mobile crane (12 tons)	Load and unload materials	2	40	5
		2	Semi tractor-trailer	Haul structures and equipment	2	60	4
		4	Air compressors	Operate air tools	4	80	4
		6	Dump truck	Haul excavated materials and import backfill	6	60	5

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138 kV Transmission Line (continued)	General Construction (continued)	3	¾-ton or 1-ton pickup truck	Transport construction personnel	2	90	4
		1	Water truck	Suppress dust and fire	1	80	5
		2	Blasting rig	Break up rock and excavate	1	30	3
	Access Roads	1	Bulldozer	Grade access roads and pole sites	1	80	5
		1	Front-end loader	Construct, maintain, and upgrade roads	1	80	5
		1	Road grader	Construct, maintain, and upgrade roads	1	80	5
		1	Compactor	Construct access roads	1	80	5
		4	Concrete truck	Pour concrete	4	50	4
	Pole Foundation Installation	2	Drill rig with augers	Excavate holes for foundation and pole installation	2	40	5
		2	Air tampers	Compact soil around structure foundations	2	60	4

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138 kV Transmission Line (continued)	Pole Installation	2	Large mobile crane (75 tons)	Erect structures	1	20	4	
		1	Backhoe	Excavate trenches	1	3	5	
	Conductor Stringing and Sagging	2	Take-up trailer	Install conductor	2	40	4	
		10	Puller and tensioner	Pull conductor and wire	2	40	4	
		5	Conductor reel trailer	Transport cable reels and feed cables into conduit	2	40	4	
		2	Splice trailer	Store splicing supplies	2	40	4	
		10	¾-ton or 1-ton pickup truck	Transport and support construction personnel	5	65	2	
			Maintenance truck	Maintain and refuel equipment	1	65	2	
	2		Bulldozer	Grade pad, access road, clear and grub	1	50	6	
	2	Scraper	Grade pad and access road	2	20	6		
		2	Compactor	Compact soil and asphalt	2	50	4	
	Boulevard Substation	Site Development	2	Compactor	Compact soil and asphalt	2	50	4

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Boulevard Substation (continued)	Site Development (continued)	2	Loader	Load dump trucks and stockpile	2	40	8
		2	Backhoe	Excavate trenches	1	30	6
		1	Excavator	Grade pad	1	30	4
		1	Rock crusher	Crush rock	1	20	6
		1	Water truck	Suppress dust	1	65	5
		8	Haul truck	Export material	8	40	10
		8	Haul truck	Import Class II material	8	7	10
		4	Concrete truck	Place concrete	4	7	3
		15	Water truck	Transport water	15	25	2
		4	Asphalt paver	Pave access roads	1	5	6
		1	Asphalt emulsion truck	Pave access roads	1	5	6
		1	Vibrating roller	Compact soil and asphalt	1	25	4

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Boulevard Substation (continued)	Site Development (continued) Below Grade Construction	7	Asphalt haul trucks	Transport asphalt	7	5	6
		12	¾-ton or 1-ton pickup truck	Transport and support construction personnel	3	72	2
		30	Concrete truck	Place concrete	1	30	8
		1	Maintenance truck	Maintain and refuel equipment	1	72	2
		1	Backhoe (with drill attachment)	Drill/excavate pier foundations	1	72	4
		2	Skid steer loader	Transport soil	2	72	6
		1	Walk-behind trencher	Excavate trenches	1	72	4
		1	Water truck	Suppress dust	1	72	2
		2	Compactor - handheld	Compact soil	2	72	4
		60	Haul truck	Export material	2	30	4

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Boulevard Substation (continued)	Above Grade Construction	6	¾-ton or 1-ton pickup truck	Transport and support construction personnel	8	50	3
		1	Maintenance truck	Maintain and refuel equipment	1	25	2
		6	Heavy van	Install/test batteries and breakers	2	40	2
		1	Boom truck	Support steel construction work	1	125	6
		4	Manlift	Support bus and disconnect construction	2	125	6
		1	All-terrain extendable forklift	Support steel and equipment construction	1	125	6
		6	Crew assist vehicle	Transport tools for breaker and transformer installation and construction	4	62	2
		4	Two-man bucket truck	Support the steel and transformer installation	2	95	4
		1	Bucket truck	Support 138 kV GCB Installation	1	20	4

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Boulevard Substation (continued)	Above Grade Construction (continued)	1	Small crane	Install transformers	1	6	6	
		1	Diesel generator (500 kW)	Distribute oil	1	6	24	
	Testing and Commissioning	2	¾-ton or 1-ton pickup truck	Transport and support construction personnel	1	20	2	
		3	Heavy van	Test relays and RTU	2	75	2	
	Existing Substation Demolition		3	Backhoe with breaker attachment	Break and remove concrete foundations and backfill	1	5	6
			5	Haul truck	Remove concrete from site	5	2	3
			1	Roller compactor	Compact backfill	1	1	4
			2	Crane	Remove the transformer	1	1	6
			1	Haul truck	Remove debris	1	4	3
			2	Oil truck/pump	Extract and remove oil	2	3	3

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Boulevard Substation (continued)	Existing Substation Demolition (continued)	4	Manlift	Support substation demolition	2	24	8
		1	Forklift	Transport material	1	24	6
		1	Water truck	Suppress dust	1	24	2
White Star Communication Facility	Site Development and Foundations Installation	10	¾-ton or 1-ton pickup truck	Transport and support construction personnel	5	15	2
		3	Drill rig	Drill pier foundation	1	2	6
		2	Backhoe	Excavate pad foundation	1	2	6
		10	Concrete truck	Place concrete	10	2	6
		3	Crane	Install communication tower and prefabricated building	1	2	6

