

The **Approved Products List (APL)** provides a list of approved products that can be installed on City of Kelowna owned infrastructure. Any use of an alternate product requires the approval of the APL Committee.

The following products have been reviewed and are approved in accordance with the **Approved Products List - Administrative Policy**.

- 1. Water Distribution**
 - 1.1. Watermain and Service Pipe
 - 1.2. Fittings and Appurtenances
 - 1.3. Valves
 - 1.4. Hydrants and Hydrant Paint
 - 1.5. Brass Service Fitting
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- 2. Sanitary Sewer**
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 - 2.2. Fittings and Appurtenances
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 - 3.2. Fittings and Appurtenances
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 - 7.2. Fittings and Appurtenances

Section	Material	Manufacturer	Make/Model	Size Range	Comments/Conditions	Date Approved mm/yyyy
1	Water Distribution					
	<p>Products must conform to CSA Standard, where applicable.</p> <p>All bolts to be stainless steel or high-strength low-alloy steel bolts. All bolts & unprotected metallic fittings to be protected with petrolatum primer and tape. Chipped or damaged epoxy coated fittings must be repaired as per manufactured specifications</p> <p>All PVC Watermains to be pigmented Blue</p>					
1.1	Watermain and Service Pipe					
	PVC	IPEX Royal	PVC DR 18, PR235 AWWA C900	100 to 900mm		
	PVC	IPEX Royal	PVC DR 25, PR165 AWWA C900	350 to 1500mm	<p>Only if approved by the City Engineer.</p> <p>Not to be used for pump mains or where there might be frequent transient pressure fluctuations, or where potential pressure zone changes could occur.</p>	
	Ductile Iron	Canada Pipe US Pipe	Ductile C151	400mm and up.	<p>Only if approved by City Engineer.</p> <p>Soil conditions must be investigated to determine need for cathodic protection. Must be installed with Polyethylene encasement per manufacturer regardless of soil conditions. (See Bylaw 7900 Water Design section)</p> <p>Pipe to be cement mortar lined to AWWA C-104.</p>	
	Watermain HDPE					

Section	Material	Manufacturer	Make/Model	Size Range	Comments/Conditions	Date Approved mm/yyyy
	Service Pipe	Great Lakes Copper	Type k Copper	min. 19mm 3/4") max. 50mm (2")	Must conform to CSA HC.7.6 & ASTM B88	
	IPEX	Polyethylene	min. 25mm (1") max. 50mm (2")	Only Series 160 or 200 conforming to CAN/CSA-B137.1-M. Due to its thicker wall, all plastic pipe's ID are smaller than copper; confirm flow capacity. Add trace wire for plastic service pipe.		
	Rehau	MUNICIPEX*	min. 25mm (1") max. 50mm (2")	Due to its thicker wall, all plastic pipe's ID are smaller than copper; confirm flow capacity. Add trace wire for plastic service pipe.		
1.2	Fittings and Appurtenances					
	Refer to Section 2.3 for Manhole products					
	Watermain Fittings - PVC	IPEX	PVC 5 degree CIOD bend	All Sizes	C900 / 905 / 907. Pressure Class to meet or exceed mainline.	
		Galaxy Plastics Ltd	PVC 5 degree CIOD bend	All Sizes	C900 / 905 / 907. Pressure Class to meet or exceed mainline.	
		Pro-Line Fittings	PVC 5 degree CIOD bend	All Sizes	C900 / 905 / 907. Pressure Class to meet or exceed mainline.	
		Royal	PVC 5 degree CIOD bend	All Sizes	C900 / 905 / 907. Pressure Class to meet or exceed mainline.	

Section	Material	Manufacturer	Make/Model	Size Range	Comments/Conditions	Date Approved mm/yyyy
	Watermain Fittings – Ductile Iron	TC / ACS	Ductile Iron	100 – 600 mm	C-153 Fittings only	
		Sigma	Ductile Iron	100 – 600 mm	C-153 Fittings only	
		Corporation	Ductile Iron	100 – 600 mm	C-153 Fittings only	
	Anti-corrosion Petrolatum Products	Petro Coating Systems Ltd.	Paste & primer, Mastic, Tape		See City of Kelowna Standard Drawings.	
		Denso North America	Denso Paste, LT tape		See City of Kelowna Standard Drawings.	
	Restraining Joints				Restraining Joints are not to be used on AC or CI Watermain.	
		Ford Meter Box Co. / Uni-Flange	UFR1300C UFR1350C UFR1390C UFR1309-C UFR1399-C	100 – 600 mm 100 – 600 mm 100 – 600 mm 100 – 450 mm 100 – 450 mm		
		Smith Blair	115 165 136 (PVC Fittings)	100 – 600 mm 100 – 600 mm 100 – 200 mm		
		Sigma	PV – LOC Series Zip Flange	100 – 600 mm 100 – 600 mm	PV-LOC is directional only for PVC. Install according to manufacturer instructions. Zip Flange is a flange adaptor for DI pipe.	
		EBA Iron	Series 1500 PVC Series 2800 Series 1900 Series 2946	100 – 300 mm 350 – 600 mm 100 – 300 mm 400mm	Series 1500 is only for C900 (i.e., 100-300mm)	

Section	Material	Manufacturer	Make/Model	Size Range	Comments/Conditions	Date Approved mm/yyyy
		IPEX	Polyethylene	min. 25mm (1") max. 50mm (2")	Only Series 160 or 200 conforming to CAN/CSA-B137.1-M. Due to its thicker wall, all plastic pipe's ID are smaller than copper; confirm flow capacity. Add trace wire for plastic service pipe.	
		Rehau	MUNICIPEX*	min. 25mm (1") max. 50mm (2")	Due to its thicker wall, all plastic pipe's ID are smaller than copper; confirm flow capacity. Add trace wire for plastic service pipe.	
	Service Saddles			19 – 50mm		
		Robar	2616 2626 2706	50 – 300 mm 100 – 450 mm 100 – 600 mm	Dbl-bolt Dbl-bolt Dbl-strap with stainless steel straps	
		Canada Pipe	SC-2	100 – 400 mm	With stainless steel straps	
		Ford	FS313 202 BS	100 – 300mm 100 – 762 mm	With stainless steel straps	
		Cambridge Brass	812 8403 8407	100 – 300 mm 100 – 300 mm 300mm & larger	Two-piece – 4 bolts Single piece – 2 bolts Two-piece – 4 bolts	
	Service Tapping Saddles			100mm & larger		
		Robar	All	100mm & larger	Manufactured steel for metal pipe only.	
		Smith-Blair	All	100mm & larger	Manufactured steel for metal pipe only.	
		JCM	All	100mm & larger	Manufactured steel for metal pipe only.	
		Robar	All	100mm & larger	Stainless steel for all pipe types.	

Section	Material	Manufacturer	Make/Model	Size Range	Comments/Conditions	Date Approved mm/yyyy
		Smith-Blair	All	100mm & larger	Stainless steel for all pipe types.	
		Smith-Blair	All	100mm & larger	Stainless steel for all pipe types.	
	Couplings				All couplings to be Fusion Bonded Epoxy Coated Ductile Iron	
		Ford	FC1-ESH FCA-ESH FC2W Ultra Flex	100 – 300 mm 100 – 600 mm 100 – 300 mm		
		Robar	1506&1506R 1596 Vantage 1696,2-bolt stainless	100 – 600 mm 100 – 300 mm 100 – 200mm		
		Smith Blair	441 421	100-400 mm 100-300mm		
		Viking Johnson	Maxi-Fit & Maxi-Step	All sizes		
		Romac	XR 501 Extended Range	100 – 300 mm	All Romac to be epoxy coated	
		IPEX Royal Galaxy Plastics Ltd, Pro-Line Fittings	PVC Repair & High Deflection Couplings	All sizes	C900 / 905 / 907. Pressure class To meet or exceed mainline.	
	Service Valve Boxes	Meuller	A-726 A-728	20 – 25 mm 37 – 50 mm	c/w Stainless Steel Rods & SS-RHD or MD-RHD Clevis Ends. Nelson Valve Box with Water Lid. Riser pipe to be notched out an mounted over service and supported by precast concrete patio block. Or as required by ID.	

Section	Material	Manufacturer	Make/Model	Size Range	Comments/Conditions	Date Approved mm/yyyy
		Trojan Industries	VSB1 VSB2	20 – 25 mm 37– 50 mm	c/w Stainless Steel Rods & SS-RHD or MD-RHD Clevis Ends. Nelson Valve Box with Water Lid. Riser pipe to be notched out and mounted over service and supported by precast concrete patio block. Or as required by ID.	
	Main Valve Boxes	TC / ACS	MR-6	Minimum 375mm	Nelson Type Lid	
		Dobney Foundry Armtec	MR-6		Nelson Type Lid	
1.3	Valves					
	Valves	Gate Valves – Resilient Wedge				
		Mueller	A-2362 A-2361	50 – 100 mm 100 - 1370 mm	250 PSI 250 PSI – DI	
		TC / ACS	3100 PO x PO 3200 PO x FL 3300 MJ x MJ 3400 MJ x FL 3500 FL x FL 3700 Thrd x Thrd	100 – 300mm 100 – 300mm 100 – 300mm 100 – 300mm 50mm – 300mm 50mm – 75mm	250 PSI – DI	
	Valves	Butterfly Valves				
					All design recommendations to be approved by the City Engineer. Installation requires placement within chamber for access and maintenance.	

Section	Material	Manufacturer	Make/Model	Size Range	Comments/Conditions	Date Approved mm/yyyy
	Air Valves	Vent-O-Mat	RBX			
1.4	Hydrants					
	Hydrants	Terminal City	C-71-P		TCH1A only c/w Storz Fitting	
		Canada Valve	Mueller-Century		c/w Storz Fitting	
	Hydrant Paint				DULUX PAINTS (High gloss, lead free enamel. Self-priming with rust inhibitor)	
		METALCLAD	218419	P-1 RED	STOCK COLOUR	
		METALCLAD	218412	P-2 BLUE	STOCK COLOUR	
		METALCLAD	218413	P-3 YELLOW	FFR1Y32	
		METALCLAD	218414	P-4 GREEN	STOCK COLOUR	
		METALCLAD	218427	P-5 ORANGE	STOCK COLOUR	
		METALCLAD	218420	P-6 BLACK	STOCK COLOUR	
1.5	Brass Service Fittings					
	Brass Service Fittings				No Lead Brass	
	Corporation Stops	Mueller	B-25008	20 – 50 mm	Full port only	
		A.Y. McDonald	74701BQ	20 – 50 mm	Full port only	
		Ford	FB 1000	20 – 50 mm	Full port only	

Section	Material	Manufacturer	Make/Model	Size Range	Comments/Conditions	Date Approved mm/yyyy	
		Cambridge Brass	Series 301	20 – 50 mm	Full port c/w new mueller gasket		
	Curb Stops				Stop & Drains NOT permitted		
		Mueller	B-25209	20 – 50 mm	Full port only		
		A.Y. McDonald	76100Q	20 – 50 mm	Full port only		
		Ford	B44 Series	20 – 50 mm	Only full port models 333,444, 555, 666 & 777		
	Service Line Couplers	Ford	C44 Series	20 – 50 mm	Models C44-1 to C44-88		
		Mueller	H-15403	20 – 50 mm	H15403, H15404 & H12940		
		Cambridge Brass	Series 118 & 119	20 – 50 mm			
1.6	Kiosks						
	Pressure Reducing Stations	Valid Manufacturing	KXXA89-150-47-01	89”Hx150”Wx47D	Quad Door Kiosk with end Cabinet		
	Air Valve	Valid Manufacturing	HRV344227-170165	25-100mm	Insulated heated enclosure where above ground air valves are utilized.		
2	Sanitary Sewer						
	All Concrete used in construction shall be sulphate resistant cement Type HS (Type 50) or alternate cement type may be approved by the City Engineer. All manhole cast iron, steel or ductile iron components shall be coated with an asphalt varnish.						
2.1	Pipe Mains and Services						

Section	Material	Manufacturer	Make/Model	Size Range	Comments/Conditions	Date Approved mm/yyyy
		IPEX "Ring-Tite" Royal "Flex-Lox"	PVC DR35	For 200mm diameter and up.	Must meet CSA B182.2 Gasket joint.	
		IPEX "Ring-Tite" Rehau "BondLoc" Royal "Flex-Lox"	PVC DR28	100 – 150mm (All Makes)	Must meet CSA B182.2 Gasket joint	
		IPEX "Blue Brute" Royal "FlexLox"	Pressure Pipe for Sewer Forcemains	100 – 300mm 350 – 900mm	Colour to be White with "SEWER FORCEMAIN" Printed on it. Must meet CSA B137.3, C900, Class 235 (DR 18), gasket joint.	
		Langley Ocean Pipe A.E. Concrete Armtec	Reinforced Concrete	300 – 3000mm	Concrete pipe must meet CSA A257 Series-14, C 789M-95a specification for Precast Reinforced Concrete Pipe. Sulphate resistant ASTM E 632.	
2.2	Fittings and Appurtenances					
	Couplings	IPEX Royal Galaxy Plastics Ltd. Mission Rubber (Flex-Seal)	PVC Gasketed Corebell Adaptor Shielded Transitional PVC 100 to 675mm	100 – 675mm 100 – 675mm 100 & up	Must not be plasticized PVC. Shear band and clamps to be 316 Series stainless steel. Clamps must be nut & bolt design. Bushings to be integral.	
	Inserted Service Connections	Galaxy Plastics Ltd. Inserta Fittings Co. Royal	EZ Tee Inserta Tee Fat Boy, PVC gasket type	100mm	May be used on existing mains 200mm & larger or on new mains 375mm & larger	
		Galaxy Plastics Ltd. Inserta Fittings Co. Royal	EZ Tee Inserta Tee Fat Boy, PVC gasket type	150mm	Refer to STD DWG SS-50 for Manhole requirement. May be used on existing mains 300mm & larger or new mains 375mm & larger	

Section	Material	Manufacturer	Make/Model	Size Range	Comments/Conditions	Date Approved mm/yyyy
		Galaxy Plastics Ltd. Inserta Fittings Co. Royal	EZ Tee Inserta Tee Fat Boy, PVC gasket type	200mm	Manhole required on services 200mm and up. Special Approval required for existing mains 300mm & larger or new mains 375mm & larger	
	Inspection Chambers	Royal Galaxy Plastics	Sewer Gasketed Fittings	100 – 200mm	Single service IC's only. With provision for "add-a-flap" check valve (PICF04*SS).	
	Inspection Chamber Caps & Lids	Royal Galaxy Plastics	191-LL (Red/Green)	200mm	PVC. Must be locking type. Red in colour for sanitary sewer	
	Service Boxes	Langley Concrete Kon Kast	WM-37-1 No. 1480	590 x 410mm 545 x 370mm	Brooks style box. State "Sanitary" or "Storm" on cover.	
	45 Degree Wye	Royal IPEX Galaxy Plastics Ltd.	Services	All	PVC gasket type. No wye saddles allowed.	
	Service Bends	Royal Galaxy Plastics Ltd.	Service sweep Fittings	All	Long radius sweeps only. PVC Gasketed. PVC Gasketed Sewer Fittings	
	Gaskets	IPEX Rehau Royal	"Ring-tite" PVC "BondLoc" PVC "Flex-Lox" PVC	200 – 1200mm		
2.3	Manholes					
	Manhole Frame & Cover	Terminal City Ironworks Dobney Foundry Trojan Industries Westview Sales Armtec/AE Concrete	Adjustable C18 & C44 C44A TR40 C23 C18	762mm (30 in)	Refer to Supplementary Standard Detail Drawings for required lettering on manhole covers. Refer to installation specifications.	
	Manhole Grade Rings	Kon Kast Langley Concrete AE Concrete	720 – 723 MH-6 915	50 - 150mm	760mm diameter opening 760mm, 565 Sloped rings	

Section	Material	Manufacturer	Make/Model	Size Range	Comments/Conditions	Date Approved mm/yyyy
	Manhole Barrel Sections	Kon Kast Langley Concrete	Concrete	1050 – 2400mm	Refer to Standard Detail Drawings	
	Manhole Rungs		Aluminum		Refer to Standard Detail Drawings	
	Manhole Barrel Lids (donuts)	Kon Kast Langley Concrete	Concrete	1050 – 2400mm	Refer to Standard Detail Drawings 760mm diameter opening	
	Manhole Barrel Bases	Kon Kast Langley Concrete	Concrete	1050 – 2400mm	Refer to Standard Detail Drawings	
	Flow Control	Galaxy Plastics Ltd.	Inlet Control Device	100mm & larger	For use in Flow Control Manholes Debris Screens	
	Internal Drops	Royal Reliner/Duran	PVC A-4 A-6 B-8 B-10	100 - 200mm 100mm 150mm 200mm 250mm	Refer to Standard Detail Drawings Inside drop bowl.	
2.4	Pressure Systems					
3	Stormwater					
3.1	Pipe Mains and Services					
	Pipe mains	IPEX "Ultra Rib" Royal "Kor Flo"	Ribbed PVC	200 – 600mm	Must meet CSA B182.4 Concentric ribbed pipe only is accepted. (storm only). No spiral ribbed pipe.	
		(as above)	Perforated PVC	200 – 600mm	With perforations as per Standard Drawing SS-S53	
3.2	Fittings and Appurtenances					

Section	Material	Manufacturer	Make/Model	Size Range	Comments/Conditions	Date Approved mm/yyyy
	Refer to Section 2.2 for Fittings and Appurtenances products unless otherwise listed below.					
	Inspection Chamber Caps & Lids	Royal Galaxy Plastics	191-LL (Red/Green)	200mm	PVC. Must be locking type. Green in colour for storm drainage	
	Culverts	Langley Concrete Ocean A.E. Concrete Armtec Atlantic Industries	Non-reinforced Concrete Reinforced Concrete Reinforced Concrete Arch Reinforced Concrete Box Corrugated Steel Multi-Plate BOSS 2000 HDPE Ribbed	See manufacturer spec's	Concrete pipe must meet CSA A257 Series-14. Soils testing required for suitability when specifying metal pipe. C 789M-95a Specification for Precast Reinforced Concrete Box Sections for Culverts, Storm Drains, and Sewers. C 850M-95b Specification for Precast reinforced concrete Box Sections for culverts, Storm Drains and Sewers with less than 0.6 m of cover subjected to Highway Loadings. Note: Corrugated steel pipe (CSP) limited to driveway and road crossings only. Not to be used contiguous with collection pipe networks.	
	Headwall	Langley Concrete, Ocean Pipe, Tri-Kon, AE Concrete	Pre-cast concrete headwalls		Grills required for 450mm and larger and pipes longer than 30m	
	Headwall Inlet	Kon Kast	Inlet structure with grillage Model 1487		Grills required for 450mm and larger pipes longer than 30m.	
	Catch Basin Rollover Frame and Grate	Westview Dobney Foundry Ltd. Terminal City Ironworks Trojan Industries	RB7 frame & grate B-39M – modified grate T-K7	632mm (~25in)	Specified by design engineer where location of driveway letdowns are unknown.	

Section	Material	Manufacturer	Make/Model	Size Range	Comments/Conditions	Date Approved mm/yyyy
	Catch Basin Combined Side & Gutter Inlet	Westview Sales Ltd. TC/ACS Dobney & Trojan	TR-39B – 3-piece storm with side inlet	627mm (~25in)	To be used with standard barrier curb or as specified by design engineer.	
3.3	Manholes and Drywells					
	Refer to Section 2.3 for Manhole products unless otherwise listed below.					
3.4	Containment Devices and Oil/Grit Separators					
	¹ Units are to be verified by Canadian Environmental Technology Verification Program (Canadian ETV) and have sufficient capacity to meet regulatory requirements for water quality to receiving waters					
		Armtec	Pro-Eco-Lite Headwalls	300mm – 2000mm		
		Armtec Downstream Defender	Swirl-type oil/water separator ¹			
		Armtec Hydro-Brake	Vortex flow control		Alternate to orifice control. Must be engineered and design verified by Armtec.	
		Contech Construction - CDS Technologies	Swirl-type oil/water separator ¹			
		Contech CON/SPAN	Concrete Detention & Infiltration		Large volume underground detention. Open bottom optional for infiltration.	
		Imbrium Stormceptor – Langley Concrete	Swirl-type oil/water separator ¹			
		Infiltrator Water Technologies	Infiltrator systems		Where infiltration is recommended.	
		PolyDrain - Interceptor A-67	Drain systems		Interceptor trench drains.	

Section	Material	Manufacturer	Make/Model	Size Range	Comments/Conditions	Date Approved mm/yyyy
		Snout – Best Management Products	Enhanced trapping hood system for gravity separation.		Installed in minimum 1050mm manhole barrel to replace standard catch basin. Use of these devices to be limited to intersections and not used as primary outfall treatment device.	
		Stormtech Chambers	Chamber / Infiltrator			
4	Highway					
4.1	Traffic Signs					
	Sign-Street Name					
	Sign-Traffic					
	Sign Bases					
	Sign Posts					
	Sign Fasteners					
4.2	Pavement Markings					
	Thermal Plastics					
	Paint					
5	Roadway Lighting					

Section	Material	Manufacturer	Make/Model	Size Range	Comments/Conditions	Date Approved mm/yyyy
5.1	Luminaires					
	LED Cobra Luminaires					
	Cobra	GE GE	31W_ERL1_0_04_B3_30A_GRAY_ILR 31W_ERL1_0_04_C3_30A_GRAY_ILR		31W, LED, 4000 Lumens, Type II Wide, 3000K 120V-277V, ANSI C136.41 7 Pin, Gray, IP66, Tool-less Entry, Optional Secondary Enhanced Surge Protection	
	Cobra	GE GE	39W_ERL1_0_05_B3_30A_GRAY_ILR 39W_ERL1_0_05_C3_30A_GRAY_ILR		39W, LED, 5000 Lumens, Type II Wide, 3000K 120V-277V, ANSI C136.41, 7 Pin, Gray, IP66, Tool-less Entry, Optional Secondary Enhanced Surge Protection	
	Cobra	GE GE	47W_ERL1_0_06_B3_30A_GRAY_ILR 47W_ERL1_0_06_C3_30A_GRAY_ILR		47W, LED, 6000 Lumens, Type II Wide, 3000K 120V-277V, ANSI C136.41, 7 Pin, Gray, IP66, Tool-less Entry, Optional Secondary Enhanced Surge Protection	
	Cobra	GE GE	71W_ERL1_0_08_B3_30A_GRAY_ILR 71W_ERL1_0_08_C3_30A_GRAY_ILR		71W, LED, 8000 Lumens, Type II Wide, 3000K 120V-277V, ANSI C136.41, 7 Pin, Gray, IP66, Tool-less Entry, Optional Secondary Enhanced Surge Protection	
	Cobra	GE GE	82W_ERL1_0_10_B3_30A_GRAY_ILR 82W_ERL1_0_10_C3_30A_GRAY_ILR		82W, LED, 10000 Lumens, Type II Wide, 3000K 120V-277V, ANSI C136.41, 7 Pin, Gray, IP66, Tool-less Entry, Optional Secondary Enhanced Surge Protection	
	Cobra	GE GE	136W_ERL1_0_15_B3_30A_GRAY_ILR 136W_ERL1_0_15_C3_30A_GRAY_ILR		136W, LED, 15000 Lumens, Type II Wide, 3000K 120V-277V, ANSI C136.41, 7 Pin, Gray, IP66, Tool-less Entry, Optional Secondary Enhanced Surge Protection	

Section	Material	Manufacturer	Make/Model	Size Range	Comments/Conditions	Date Approved mm/yyyy
LED Decorative Luminaires						
	Post Top	Phillips Phillips	PDP10050W64LED3KMPPCCLE2 UNIVRCD7MGY PDP10050W64LED3KMPPCCLE5 UNIVRCD7MGY		Post Top, LED 4000 Lumens, Type II 3000 K 120-277V, Flat glass dimmable, UL/CSA listed, 10 KV/KA surge protection, Gray, 7 pin photoeye receptical, meets ANSI C136.31, UL8750, UL1598, B2-U2-G1	
	Decorative Post Top	King Luminaire	K123R-B2AR-II-50(SSL)-1042-120: 277-3K-HSS-K14		WELLINGTON STYLE Luminaire , LED,4000 Lumens, Type II Wide, 3000K 120V-277V, with Photoeye receptical and side shield	
	Decorative Post Top	King Luminaire	K425R-T1AR-II-50(SSL)-4004-120: 277-3K-HSS-K14		ACCORN STYLE Luminaire , LED,4000 Lumens, Type II Wide, 3000K 120V-277V, with Photoeye receptical and side shield	
	Decorative Pendant	King Luminaire	47W_ERL1_0_06_B3_30A_GRAY_ILR		AURORA SAG STYLE Luminaire , LED,4000 Lumens, Type II Wide, 3000K 120V-277V, with Photoeye receptical and side shield, c/w Plumbizer	
	Decorative Pendant	King Luminaire	47W_ERL1_0_06_C3_30A_GRAY_ILR		HARBOUR STYLE Luminaire , LED,4000 Lumens, Type II Wide, 3000K 120V-277V, with Photoeye receptical and side shield, c/w Plumbizer	
5.2	Photocell					
		INTERMATIC	LED4536SC		LOCKING TYPE 120-277 Volt	
5.3	Poles					
	Galvanized Powder Coated Green Poles					

Section	Material	Manufacturer	Make/Model	Size Range	Comments/Conditions	Date Approved mm/yyyy
	Davit	Nova Pole, Valmont	122-30-A2206A-F5 10020-07		22x6 Single Davit, C/W 10"-11" BCD, Galv. & Powder Coated Green	
	Davit	Nova Pole, Valmont	122-30-A3008A-F5 10170-07		30x8 Single Davit, C/W 10"-11" BCD, Galv. & Powder Coated Green	
	Double Davit	Nova Pole, Valmont	102-75-60202C-F5		Type 2C Double Davit Arm, Type 1 Flange Galv. & Powder Coated Green	
	Double Davit Pole	Nova Pole, Valmont			Type 2 Shaft, 6.5 m, Type 1 Flange, Galv. & Powder Coated Green	
	Post Top	Nova Pole, Valmont			6 metre Galv. & Powder Coated Green	
	Post Top	Nova Pole, Valmont			7.5 metre Galv. & Powder Coated Green	
Decorative Powder Coated Black Poles						
	Decorative Base	Nova Pole, Valmont			Henderson With Transition adapter Powder Coated Black	
5.4	Bases					
	Decorative Base					
		Nova Pole, Valmont			Henderson With Transition adapter Powder Coated Black	
	Service Bases					
		Nova Pole	Open Top Service Base	NTB36 Open Top	Open top service base for use with Davit and Post Top poles. Powder Coated Kelowna Green	

Section	Material	Manufacturer	Make/Model	Size Range	Comments/Conditions	Date Approved mm/yyyy
		Nova Pole	Closed Top Service Base	NTB36 Closed Top	Closed top service base for use as a remote service with any pole style. Powder coated Kelowna Green for davit and post top poles and powder coated Black for decorative pole locations	
5.5	Electrical Service Disconnect					
		Valid Manufacturing	BSDA6A18		Base Service Disconnect	
6	Traffic Signals					
7	Landscape and Irrigation					
7.1	Controller					
	Controller	Toro	Sentinel V3		Configured to communicate with Sentinel Central Control c/w level 3 surge protection	
		Rain Bird	ESP LXMEF		Configured to communicate with Rain Bird IQ Central Control	
		Rain Bird	ESP LXD		For decoder systems; configured to communicate with Rain Bird IQ Central Control	
	Controller Kiosk	Valid Manufacturing	Dwg# KSDA48-36-16-02	48"Hx36"Wx16"D W/MW and lockable handles		
	Controller Kiosk Base	Leko Precast Ltd.			Per Detail Drawing	
7.2	Fittings and Appurtenances					

Section	Material	Manufacturer	Make/Model	Size Range	Comments/Conditions	Date Approved mm/yyyy
	Backflow Prevention Assembly - DCVA	Apollo	4A-100 Series	Up to 2"		
		Apollo	4A-100 Series	2 1/2" or greater		
		Watts	Series 709w/NRS	2 1/2" or greater		
	Pressure Regulating Valve	Watts	LF25 AUB-DU-Z3	Up to 2" , lead free, double union		
		Watts	Watts PV 10M	Greater than 2"		
	Hydrometer	Hydrometer (1.5")	Netafim	LHM15EM11AAFME	ER register preprogrammed. Output: gal/pulse red: 0.1 green: 1.0 Instructions: wire controller to red wire only. Decoder systems require manufacturer's decoder cable. Other systems require PE39 cable	
		Hydrometer (2")	Netafim	LHM2EM11AAFME	ER register preprogrammed. Output: gal/pulse red: 0.1 green: 1.0 Instructions: wire controller to red wire only. Decoder systems require manufacturer's decoder cable. Other systems require PE39 cable	
		Hydrometer (3")	Netafim	LHM3EM11AAFME	ER register preprogrammed. Output: gal/pulse red: 0.1 green: 1.0 Instructions: wire controller to red wire only. Decoder systems require manufacturer's decoder cable. Other systems require PE39 cable	

Section	Material	Manufacturer	Make/Model	Size Range	Comments/Conditions	Date Approved mm/yyyy
	Electrical Control Valve	Hunter	ICV			
		Rain Bird	PEB			
		Toro	P-220			
	Low Flow Control Valve	Hunter	ICV			
		Rain Bird	PEB			
		Toro	TPV			
	Low Flow Filter	Rain Bird	QKCHK			
		Rain Bird	PRB-QKCHK			
	High Flow Filter	Amiad	Amiad 1.5" Super		Installed as per Detail Drawings.	
	Air Relief Valve	Rain Bird	ARV050	0.5" air relief valve		
		Rain Bird	Air/Vacuum Relief Valve Kit	0.75" air relief valve w/ compression tee and flush cap		
		Toro	T-YD-500-34	0.5" air relief valve		
	Isolation Valve	Red & White	206	Up to 2"		
		Clow	Resilient Wedge Gate Valve Model C509 w/flanged ends	3"		
		Clow	Resilient Wedge Gate Valve Model C515 w/flanged ends	4" or greater		

Section	Material	Manufacturer	Make/Model	Size Range	Comments/Conditions	Date Approved mm/yyyy	
	Quick Coupler Valve	Rain Bird	5-RC				
	Sprinklers - Sprayhead	Hunter	PRO-SPRAY PRS30				
		Hunter	PRO-SPRAY PRS40				
		Rain Bird	PRS-SAM Series				
		Toro	PRX-COM Series				
		Sprinklers - Rotor	Hunter	PGJ			
	Hunter		I-20				
	Hunter		I-25				
	Hunter		I-40				
	Rain Bird		3500 SAM				
	Rain Bird		5000 PL SAM PRS				
	Sprinklers - Rotor		Rain Bird	5500			
			Rain Bird	6504			
			Rain Bird	8005			
			Toro	Mini 8			
		Toro	T5				

Section	Material	Manufacturer	Make/Model	Size Range	Comments/Conditions	Date Approved mm/yyyy
		Toro	T7			
	Drip Emitter / Bubblers	Hunter series			Installed as per Detail Drawings.	
		Rain Bird series			Installed as per Detail Drawings.	
		Toro series			Installed as per Detail Drawings.	
	Sub-surface Dripline	Hunter	PLD			
		Rain Bird	XFS			
		Toro	DL2000 Series			
		Netafim	Techline HCVXR			
	Root Zone Watering System	Hunter	RZWS		w/ root watering sock	
		Rain Bird	RWS Series		w/ root watering sock	
	Valve Box / Extensions	Carson Industries	LLC Specification Grade		Locking lid w/stainless steel bolt and washer	
		NDS Manufacturing	Pro Series			
		Rain Bird	VB-SPR (Super Jumbo Valve Box)		for Auto Flush Filter	
	Meter Vault	Kon Kast	1102			
	Meter Vault Lid	Kon Kast	1102B			
	Irrigation Vault	Kon Kast	1102			

Section	Material	Manufacturer	Make/Model	Size Range	Comments/Conditions	Date Approved mm/yyyy
	Irrigation Vault Base	Kon Kast	1102B			
	Irrigation Vault Lid	Excel Metal Fab	3974-2		c/w locking hinge for support when open	
	Irrigation Vault c/w Base	Kon Kast	1132			
	Irrigation Vault Lid	Excel Metal Fab	11040-4	3974-2		
	Vault support jack	Excel Metal Fab	VPSS-1 - with s/s pipe clamp and 1/8 rubber liner		Specify pipe size and adjustment length when ordering	
	Vault sealant foam	Dow	Great Stuff Pro		to be utilized around vault openings	
	Wire Splice Box	Carson Industries	LLC Specification Grade		Locking lid w/stainless steel bolt and washer. Grey in color	
		NDS Manufacturing	Pro Series		Locking lid w/stainless steel bolt and washer. Grey in color	
	Pipe	PVC	CSA			
		HDPE	UL, ULC, CSA			
		PE	UL, ULC, CSA			
	Fittings	PVC	CSA			
		HDPE	UL, ULC, CSA			