SH58 Haywards Safety Improvements

Construction

Expected construction 2021-2026
Roundabouts, road and bridge widening; median barrier

		Units		Emissions Factor Unit		Sources and notes
Do Intervention						
Material Quantities Estimate						
Construction Fuel Use						
Diesel	226,973	L	0.0027	tCO2e/L		MfE 2020
Construction Materials						
Concrete	2,099	tonnes	0.11	tCO2e/tonne		AECOM derived factor (See assumptions below)
Steel	133	tonnes	2.85	tCO2e/tonne		MfE 2020
Road Surface						
Crushed rock or recycled material	-	tonnes	0.0032	tCO2e tonne		IS Calculator NZ v2.0
Gravel	54,948	tonnes	0.0182	tCO2e/tonne		IS Calculator NZ v2.0
Bitumen	-	tonnes	0.9966	tCO2e/tonne		IS Calculator NZ v2.0
Asphalt	21,683	tonnes	0.0542	tCO2e/tonne		IS Calculator NZ v2.0
Project Breakdown Total	**3,397**	tonnes of CO2e				
Calculated Emissions						
Best estimate of calculated emissions	**3,397**	tonnes of CO2e				

Assumptions

Emissions for construction have been calculated from data provided by Waka Kotahi for this project. When possible assumptions have been made in a consistent manner to ensure comparability
Refer to construction schedule worksheet for indicative schedule of quantities of concrete, steel, aggregates, gravels and fuels used during construction.
Based on previous research for Waka Kotahi, only emissions from the largest emission sources from construction of infrastructure projects have been estimated (concrete, steel, aggregates, asphalt, and on-site fuel use).
Materials and works related to bridge abutments have been included where relevant.
Fuel used in the construction is assumed to be 2 litres of diesel for every m3 of earth works (AECOM derived fuel-use ratio).
The following were not included in the estimate: fuel used in quarrying activity; emissions from the transportation of construction materials to/from site.

Emission factors are sourced from MfE's 2020 Guide (see link below) where appropriate, or from the ISCA-IS Calculator v2.0.
https://environment.govt.nz/publications/measuring-emissions-detailed-guide-2020/
The ISCA-IS Calculator v2.0 is available for ISCA members at https://www.isca.org.au/Tools-and-Resources
The emission factor for concrete is based on MfE 2020 and ISCA guidance and is based on a standard concrete mix.

SH58 Haywards Safety Improvements — Construction Schedule

Source Extracted from SH58 Safety Improvements RFT - Schedule of Prices (SP2B STN4680 - 77890 (Harris to Flightys) Rev 0C); provided by WK

Schedule of Prices				Material	Unit	Material	Unit	Material	Unit	Material	Unit	Material	Unit	
Code	Description	Unit	Quantity	Concrete	t r m3	Steel	t r m3	Asphalt	t r m3	Aggregates	t r m3	Fuel	l r kg	Assumptions/ Notes
D1	ENVIRONMENTAL COMPLIANCE													
1.1	Stormwater Discharge Mitigation													
1.1.1	Erosion and sediment control measures (description indicated and drawings referenced)													
1.1.1.1	Temporary erosion and sediment control measures for the whole site in accordance with ECSP and Drawings incorporating design, approvals installation, disestablishment and reinstatement of silt fences, stormwater diversion bunds, sediment retention ponds, treatment systems, temporary drop structures, flumes, contour drains and other structures required erosion and sediment control compliance requirements.	LS	1											
D2	EARTHWORKS													
2.1	Site Clearance													
2.1.1	Site and borrow pit clearance organic material (dump areas indicated)													
2.1.1.3	Organic material disposed of at Council landfill site, including transport costs and disposal fees	ha	7											
2.1.2	Site clearance inorganic material (inorganic material specified and dump areas indicated)													
2.1.2.3	Disposal of all inorganic material at Council landfill site, including transport costs and disposal fees	LS	1											
2.2	Demolition and dismantling installations													
2.2.2	Dismantling installations to waste, including safety barriers, fences, signs, sign supports, etc. (installation indicated)													
2.2.2.3	Leading end terminal	No	2											
2.2.2.5	Break-away cable terminal	No	13											
2.2.2.6	Buried in Backslope terminal block	No	2											
2.3	Topsoil													
2.3.1	Topsoil stripping including temporary stockpiling of stripped topsoil (site indicated)													
2.3.1.1	Topsoil stripped from all areas on the site	m3	4,680									9,360	l	2l/m3 earthworks
2.4	Existing Pavement and Surfacing													
2.4.3	Mill and salvage existing pavement and surfacing (material indicated)													
2.4.3.3	Milling existing pavement under structural AC areas (either to base profile of structural AC or to allow 100mm AP40 whichever is less) average depth 60mm	m2	2,600									2,600	l	2l/m3 earthworks. Assume 0.5m depth
2.6	Fill													
2.6.1	Cut to fill (Type A, Type R1, and Type R2 materials)													
2.6.1.1	Cut to fill	m3	7,500									15,000	l	2l/m3 earthworks
2.6.3	Hard material extra over cut to fill (2.6.1)													
2.6.3.1	No extra over payment to be made for Type R1 hard material	INCL	-											
2.6.3.2	Type R2 hard material	m3	1,900									3,800	l	2l/m3 earthworks
2.7	Waste and surplus													
2.7.1	Cut to waste (All Material Types)													
2.7.1.1	Cut to waste - Bulk	m3	48,000									96,000	l	2l/m3 earthworks
2.7.1.2	Cut to waste - Shoulders / tie-ins / bridges	m3	7,200									14,400	l	2l/m3 earthworks
2.7.3	Cut to waste unsuitable material undercut from below formation level in cuttings													
2.7.3.1	Type U and Type W materials including, on instruction, any Type A material that fails to meet minimum strength requirements PROVISIONAL ITEM	m3	3,800									7,600	l	2l/m3 earthworks
2.7.5	Hard material extra over cut to waste (2.7.1, 2.7.3 and 2.7.4)													
2.7.5.1	No extra over payment to be made for Type R1 hard material	INCL	-											
2.7.5.2	Type R2 hard material	m	560									1,120	l	2l/m3 earthworks
2.9	Subgrade and subgrade improvement layer (SIL)													
2.9.1	Subgrade in situ preparation, shaping, and compaction													
2.9.1.1	All material	m2	13,000									26,000	l	2l/m3 earthworks
2.9.5	Subgrade from commercial sources (depth ranges indicated)													
2.9.5.1	0 to 400 mm below top of subgrade level PROVISIONAL ITEM	m3	3,800									7,600	l	2l/m3 earthworks
2.1	Trimming and Shaping													
2.10.1	Trimming and shaping slopes to conform to adjoining natural ground levels													
2.10.1.1	Cut slopes on instruction of Engineer after excavation old points	m2	8,250									16,500	l	2l/m3 earthworks
D3	GROUND IMPROVEMENTS													
3.1	Drainage, Filtration and Separation													
3.1.1	Geotextiles (application category, material, filtration class, and strength class indicated)													Considered immaterial
3.1.1.1	G1: Separation layer in embankments NZTA F/7 Strength Class C at the bottom of the undercut subgrade	m2	6,875											Considered immaterial
3.2	Strengthening													
3.2.1	Geogrids (type, material, and strength indicated)													
3.2.1.2	Biaxial or triaxial geogrid (e.g. SS40 or Triax 170) or other similar approved Geogrid for use in subgrade undercut PROVISIONAL ITEM	m2	6,875											Considered immaterial
D4	DRAINAGE													
4.1	Surface Water Channels													
4.1.1	Surface water channels excavate and trim to shape extra over cut to fill and cut to waste (material classification indicated)													
4.1.1.1	All material	m2	10,600									2,120	l	2l/m3 earthworks. Assume 0.5m depth
4.1.1.4	Top of cut slope overland flow interception channel (SD455)	m2	90									18	l	2l/m3 earthworks. Assume 0.5m depth
4.1.3	Surface water channel lining including reinforcing, formwork, and joints as applicable (thickness and materials indicated)													
4.1.3.7	13mm concrete canvas (Hynds or similar approved) lining to trapezoidal drains	m2	3,800	123.50										Concrete at 2.5t/m3

SH58 Haywards Safety Improvements — Construction Schedule

Source Extracted from SH58 Safety Improvements RFT - Schedule of Prices (SP2B STN4680 - 77890 (Harris to Flightys) Rev 0C); provided by WK

Schedule of Prices				Material	Unit	Material	Unit	Material	Unit	Material	Unit	Material	Unit	
Code	Description	Unit	Quantity	C ncrete	t r m3	Steel	t r m3	Asphalt	t r m3	Aggregates	t r m3	Fuel	l r kg	Assumpti ns/ N tes
4.1.5	Concrete flow spreader													
4.1.5.1	Concrete flow spreader at termination of the top of cut intercept channels	No	1											
4.2	Kerbs and Channels													
4.2.3	Cast in situ concrete kerb and channel combination (type indicated)													
4.2.3.1	M5 Mountable kerb and channel: 600 mm wide x 250 mm high	m	1,850	693.75										Concrete at 2.5t/m3
4.2.3.2	B2 barrier kerb and channel: 450 mm wide x 250 mm high	m	730	205.31										Concrete at 2.5t/m3
4.2.3.3	M4 mountable kerb: 300 mm wide x 250 mm high	m	850	159.38										Concrete at 2.5t/m3
4.2.4	Precast trench drain / slot drain (type and dimensions indicated)													
4.2.4.1	Humes MEA Drain Supreme Z/S 1000, Class D 210kN Ductile Iron Wave Grate, or approved equiv.	m	245											N/A
4.3	Subsoil Drains													
4.3.1	Subsoil drains including excavation, filter media and pipes, and backfilling (application category, pipe size, depth range, material, filtration class, and strength class indicated)													
4.3.1.2	G3: Pavement subsoil drains Filtration Class 1 Strength Class A 110 mm diameter pipe 1.0 m to 1.5 m depth	m	7,600											N/A
4.3.1.9	Megaflow panel drain laid between existing pavement and widening	m	3,800											N/A
4.3.3	Cleaning eyes to subsoil drains													
4.3.3.1	Cleaning eyes to subsoil drains including Toby Box at ground level	No	150											N/A
4.3.4	Outlets to subsoil drains													
4.3.4.1	Outlets to subsoil drains, 300mm x 300mm x 100mm thick reinforced concrete facing	No	75											N/A
4.4	Culverts													
4.4.1	Concrete pipe culverts and stormwater pipes including excavation in all materials, shoring appropriate to excavation depth, and backfill with excavated material (size, type, class, trench or embankment condition, bedding, haunching, side fill, and depth ranges indicated)													
4.4.1.34	DN 300 RCRRJ Class 4 Type HS2 support. Depth 1.0m to 3.0m	m	570	108	t	21.7	t							Calculation provided by AECOM quantity surveyor 19/07/21
4.4.1.35	DN 375 RCRRJ Class 4 Type HS2 support. Depth 1.0m to 3.0m	m	455	86.45	t	17.29	t							Calculation provided by AECOM quantity surveyor 19/07/21
4.4.1.36	DN 450 RCRRJ Class 4 Type HS2 support. Depth 1.0m to 3.0m	m	440	83.6	t	16.72	t							Calculation provided by AECOM quantity surveyor 19/07/21
4.4.1.37	DN 525 RCRRJ Class 4 Type HS2 support. Depth 1.5m to 3.5m	m	85	16.15	t	3.23	t							Calculation provided by AECOM quantity surveyor 19/07/21
4.4.1.38	DN 600 RCRRJ Class 4 Type HS2 support. Depth 1.5m to 3.5m	m	27	5.13	t	1.026	t							Calculation provided by AECOM quantity surveyor 19/07/21
4.4.1.39	DN 675 RCRRJ Class 4 Type HS2 support. Depth 1.5m to 3.5m	m	85	16.15	t	3.23	t							Calculation provided by AECOM quantity surveyor 19/07/21
4.4.1.40	DN 750 RCRRJ Class 4 Type HS2 support. Depth 1.5m to 3.5m	m	135	25.65	t	5.13	t							Calculation provided by AECOM quantity surveyor 19/07/21
4.4.7	Rectangular concrete culverts including excavation in all materials, shoring appropriate to excavation depth, and backfill with excavated material (size, type, class, trench or embankment condition, bedding, side f ll, and depth ranges indicated)													
4.4.7.1	Precast HN-HO-72 box culvert 1.0 m span x 1.0 m high depth 1.5 m to 3.0 m (trench)	m	25	4.75	t	0.95	t							Assume similar to pipes
4.4.9	Backfill culvert excavations with imported materials or materials other than the excavated material extra over culverts (type of backfill and source indicated)													
4.4.9.2	Undercut and replace with imported AP40 granular fill backfill	m3	125							225	t			Assuming density of aggregate of 1800kg/m3 (CI AECOM)
4.4.9.3	Undercut and replace with imported AP65 granular fill backfill	m3	125							225	t			Assuming density of aggregate of 1800kg/m3 (CI AECOM)
4.4.9.4	Undercut and replace with imported AP15 granular fill backfill	m3	1,540							2,772	t			Assuming density of aggregate of 1800kg/m3 (CI AECOM)
4.4.11	Unstable ground conditions permanent treatment (specific measure indicated)													
4.4.11.1	Geotextile filter fabric wrapping to support adjac nt unstable ground in accordance with NZS 4404:2010 drawing "CM-002 - Standard Embedment - fl xible and rigid pipelines", "Type 4 Support"	m2	4,620											Considered immaterial
4.5	Headwalls and Inlet and Outlet Structures													
4.5.1	Precast concrete headwalls, wingwalls including bedding and backfill (size and type indicated)													
4.5.1.1	**Hynds WW0300 wingwall or equiv.**	No	4	0.82	t									Standard headwall at 0.21t per headwall https //www.hynds.co.nz/wp-content/uploads/D1.7-Hynds-Wingwalls.pdf
4.5.1.2	**Hynds WW0600 wingwall or equiv.**	No	2	0.41	t									Standard headwall at 0.21t per headwall https //www.hynds.co.nz/wp-content/uploads/D1.7-Hynds-Wingwalls.pdf
4.5.1.4	**Hynds WW1050 wingwall or equiv.**	No	1	0.21	t									Standard headwall at 0.21t per headwall https //www.hynds.co.nz/wp-content/uploads/D1.7-Hynds-Wingwalls.pdf
4.5.1.5	**Hynds WW1800 wingwalls or equiv.**	No	1	0.21	t									Standard headwall at 0.21t per headwall https //www.hynds.co.nz/wp-content/uploads/D1.7-Hynds-Wingwalls.pdf
4.5.1.7	**Hynds WW450MOUNT.6 or equiv. 1:6 slope mountable parallel to road**	No	26	5.33	t									Standard headwall at 0.21t per headwall https //www.hynds.co.nz/wp-content/uploads/D1.7-Hynds-Wingwalls.pdf
4.5.1.8	**Hynds WW600MOUNT.6 or equiv. 1:6 slope mountable parallel to road**	No	6	1.23	t									Standard headwall at 0.21t per headwall https //www.hynds.co.nz/wp-content/uploads/D1.7-Hynds-Wingwalls.pdf
4.5.1.9	**Hynds WW750MOUNT.6 or equiv. 1:6 slope mountable parallel to road**	No	4	0.82	t									Standard headwall at 0.21t per headwall https //www.hynds.co.nz/wp-content/uploads/D1.7-Hynds-Wingwalls.pdf
4.5.1.10	Precast wingwalls to 1.0m x 1.0m box culvert	No	2	0	t	0.076	t							Assume similar to pipes
4.5.2	Energy dissipators (size and type indicated)													
4.5.2.6	DN 1350 to 2100 Culvert concrete stilling basin PROVISIONAL ITEM	No	1	2.13	t	0.04	t							Assumed similar to manholes
4.5.2.7	DN 1350 to 2100 Culvert, rock dissipators in stilling/rip rap basin. PROVISIONAL ITEM	No	1	2.13	t	0.04	t							Assumed similar to manholes
4.5.4	Fish passage													
4.5.4.1	Improvement of existing culvert pipe - spat rope installation PROVISIONAL ITEM	m	30											Assume immaterial

SH58 Haywards Safety Improvements

Construction Schedule

Source Extracted from SH58 Safety Improvements RFT - Schedule of Prices (SP2B STN4680 - 77890 (Harris to Flightys) Rev 0C); provided by WK

Schedule of Prices

Code	Description	Unit	Quantity	Material C ncrete	Unit t r m3	Material Steel	Unit t r m3	Material Asphalt	Unit t r m3	Material Aggregates	Unit t r m3	Material Fuel	Unit l r kg	Assumpti ns/ N tes
4.5.4.4	Improvement of existing culvert - baffles	No	1											Assume immaterial
4.5.7	Erosion control and scour protection at headwalls and other inlet and outlet structures to culverts and flumes (type and size indicated)													
4.5.7.1	Rip rap protection (d50 = 150mm)	t	2							2	t			Assume similar to emission factor to aggregates
4.5.7.2	Rip rap protection (d50 = 450mm)	t	40							40	t			Assume similar to emission factor to aggregates
4.5.8	Erosion control geotextile													
4.5.8.1	Geotextile below rip rap NZTA F/7 Strength Class C	m2	100											Assume immaterial
4.5.9	Backfill wingwall / headwall excavations with imported materials or materials other than the excavated material extra over wingwalls / headwalls (type of backfill and source indicated)													
4.5.9.1	Undercut and replace with imported AP150 granular fill backfill	m3	240							240	t			Assume similar to emission factor to aggregates
4.5.10	Unstable ground conditions permanent treatment (specific measure indicated)													
4.5.10.1	Geotextile filter fabric wrapping to support adjacent unstable ground	m2	720											Assume immaterial
4.6	Catch Pits, Cesspits, and Manholes													
4.6.1	Catch pits and cesspits including the chamber, benching, riser sections, precast beams, lintels and kerbs, frames and grates as required, but excluding leads (type, description, dimensions, and grate type indicated)													
4.6.1.1	**Precast concrete back entry catch pit 675 mm x 450 mm x 1200 mm 675 mm x 450 mm grate with 300 mm x 150 mm reinforced concrete apron**	No	29	18.01	t									621kg per back-ent y catchpit htt s //www. es.co.nz/assets/Product-Guide/08a41cfab1/Humes-Stormwater-Co lection-Pro ucts.pdf
4.6.2	Manholes including excavation, backfill, base, benching, riser sections and rungs, lid, adjustment rings, frame, and cover or grate (type, diameter, description, and depth from cover to invert indicated)													
4.6.2.1	dome, depth to invert 3 to 4.5m	No	4	8.50	t	0.15	t							19/07/21
4.6.2.2	Precast concrete 1050 mm diameter w th Class D 210 kN cast iron frame and cover, invert depth not exceeding 1.5m	No	30	63.75	t	1.14	t							Assumed similar to manholes
4.6.2.5	Precast concrete 1200 mm diameter w th Class D 210 kN scruffy dome, depth to invert 3m to 4.5m	No	3	6.38	t	0.11	t							Assumed similar to manholes
4.6.2.6	Precast concrete 1200 mm diameter w th Class D 210 kN cast iron frame and cover cover to invert depth not exceeding 1.5 m	No	2	4.25	t	0.08	t							Assumed similar to manholes
4.6.10	Treatment													
4.6.10.5	Gross Pollutant Trap (GPT 5) - Chainage 4875 RHS Precast concrete manhole with Heavy Duty Class D 210 kN cast iron frame and cover. 100-150micron TSS capture. Road surface area 2312m2 WQ flow 10L/s, Q10 flow 75L/s, Q100 flow 172 L/s Maximum head loss through device 500mm	No	1	2.13	t	0.04	t							Calculation provided by AECOM quantity surveyor 19/07/21
4.6.10.6	Gross Pollutant Trap (GPT 6) - Chainage [illegible] LHS Precast concrete manhole with Heavy Duty Class D 210 kN cast iron frame and cover. 100-150micron TSS capture. Road surface area 1560m2 WQ flow 30L/s, Q10 flow 220L/s, Q100 flow 505 L/s Maximum head loss through device 500mm	No	1	2.13	t	0.04	t							Calculation provided by AECOM quantity surveyor 19/07/21
4.6.10.7	Gross Pollutant Trap (GP[illegible]) - Chainage [illegible] RHS Precast concrete manhole with Heavy Duty Class D 210 kN cast iron frame and cover. 100-150micron TSS capture. Road surface area 6800m2 WQ flow 23L/s, Q10 flow 166L/s, Q100 flow 381 L/s Maximum head loss through device 500mm	No	1	2. 3	t	0.04	t							Calculation provided by AECOM quantity surveyor 19/07/21
4.6.10.8	Gross Pollutant Trap (GP[illegible] 8) - Chainage [illegible] LHS Precast concrete manhole with Heavy Duty Class D 210 kN cast iron frame and cover. 100-150micron TSS capture. Road surface area 6680m2 WQ flow 17L/s, Q10 flow 121L/s, Q100 flow 278 L/s Maximum head loss through device 500mm	No	1	2.13		0.04	t							Calculation provided by AECOM quantity surveyor 19/07/21
4.6.10.9	Gross Pollutant Trap (GP[illegible] 9) - Chainage [illegible] Moonshine RAB Precast concrete manhole with Heavy Duty Class D 210 kN cast iron frame and cover. 100-150micron TSS capture. Road surface area 1625m2 WQ flow 9L/s, Q10 flow 65L/s, Q100 flow 150 L/s Maximum head loss through device 500mm	No	1	2.13	t	0.04	t							Calculation provided by AECOM quantity surveyor 19/07/21
4.6.10.10	Gross Pollutant Trap (GPT 10) - Chainage [illegible] LHS Precast concrete manhole with Heavy Duty Class D 210 kN cast iron frame and cover. 100-150micron TSS capture. Road surface area 2076m2 WQ flow 8L/s, Q10 flow 58L/s, Q100 flow 132 L/s Maximum head loss through device 500mm	No	1	2.13	t	0.04	t							Calculation provided by AECOM quantity surveyor 19/07/21
4.6.10.14	Filter Device (Filter 1) - Chainage [illegible] Moonshine RAB Precast concrete manhole with Heavy Duty Class D 210 kN cast iron frame and cover. 20micron TSS capture. Road surface area 1625m2 WQ flow 9L/s, Q10 flow 65L/s, Q100 flow 150 L/s Maximum head loss through device 500mm	No	1	2.13	t	0.04	t							Calculation provided by AECOM quantity surveyor 19/07/21
D5	PAVEMENT AND SURFACING													
5.1	Subbase													
5.1.3	Subbase from commercial sources (material, grading, and strength indicated)													
5.1.3.1	Subbase AP65	m3	15500							27,900	t			Assuming density of aggregate of 1800kg/m3 (Cl AECOM)
5.2	Basecourse													
5.2.1	Basecourse (application, material d grading in cated)													
5.2.1.3	NZTA M/4 AP40 basecourse	m3	750							1,350	t			Assuming density of aggregate of 1800kg/m3 (Cl AECOM)
5.2.1.4	FBS AP40 (Wirtgen Grading Envelope)	m3	11800							21,240	t			Assuming density of aggregate of 1800kg/m3 (Cl AECOM)
5.2.1.5	Basecourse Foamed bitumen stabi isation 240 mm nominal depth (excluding supply of stab lising agent and material)	m2	12400					4464	t					1.5t/m3
5.2.1.6	Basecourse Foamed bitumen stabi isation 250 mm nominal depth (excluding supply of stab lising agent and material)	m2	9550					3581.25	t					1.5t/m3
5.2.1.7	Basecourse Foamed bitumen stabi isation 260 mm nominal depth (excluding supply of stab lising agent and material)	m2	13500					5265	t					1.5t/m3
5.2.3	Stab lising agent (stabilising agent indicated)													
5.2.3.1	FBS Ordinary Portland cement @ 1% by mass	t	210					210						
5.2.3.2	FBS Bitumen @ 3% by mass	t	630					630						
5.3	Asphalt													
5.3.1	Asphaltic Pavement													
5.3.1.1	50mm thick AC14 HF Asphalt	m3	290					435	t					1.5t/m3
5.3.1.2	130mm to 190mm AC20 Asphalt (completed in 2 lifts)	m3	1050					1575	t					1.5t/m3
5.4	Surfacing													
5.4.5	First coat seal (type and grade indicated)													
5.4.5.1	Grade 2/4 two coat chipseal	m2	4500					675	t					1.5t/m3. Assume 0.1m thick
5.4.5.2	Grade 3 single coat chipseal	m2	6000					900	t					1.5t/m3. Assume 0.1m thick
5.4.5.3	Grade 2/4 two coat membrane with prime coat seal	m2	38900											Assume immaterial
5.4.8	Asphaltic concrete surfacing (application, type, and thickness indicated)													
5.4.8.1	EPA14 Epoxy modified open graded porous asphalt 60 mm thick	m2	30000					2700	t					1.5t/m3.

SH58 Haywards Safety Improvements

Construction Schedule

Source Extracted from SH58 Safety Improvements RFT - Schedule of Prices (SP2B STN4680 - 77890 (Harris to Flightys) Rev 0C); provided by WK

Schedule of Prices

Code	Description	Unit	Quantity	Material Concrete	Unit t / m3	Material Steel	Unit t / m3	Material Asphalt	Unit t / m3	Material Aggregates	Unit t / m3	Material Fuel	Unit l / kg	Assumptions / Notes
	SMA14 Stone mastic asphalt													
5.4.8.2	60mm thick	m2	12900					1161	t					1.5t/m3.
	DG7 Dense grade asphalt													
5.4.8.3	20mm thick	m2	1800					54	t					1.5t/m3.
5.5	Pavement Patching													
5.5.1	Dig out and patch existing pavement.													
5.5.1.1	100mm mill or excavation of existing surface or basecourse and replace with M4/ AP40 in pavement undercut	m3	350									700	l	2l/m3 earthworks
	PROVISIONAL ITEM							0	t					1.5t/m3.
5.5.1.2	Mill existing surface 50mm and replace with AC20	m3	350									700	l	2l/m3 earthworks
	PROVISIONAL ITEM							0	t					1.5t/m3.
5.6	Concrete Islands													
5.6.1	Concrete Island Infill - 20 Mpa 150mm thick	m2	600											
D6	BRIDGES AND STRUCTURES													
6.1	Excavation and Backfilling													
	Excavation													
6.1.1	(material classification and depth ranges indicated)													
	Bridge 2 - Type A soft material, including type R1 and type R2 hard materials													
6.1.1.1	depth 0 m to 2.0 m	m3	60											
6.1.1.2	Bridge 2 - Bridge abutment and wingwall	m3	60											
	Judgeford Underpass - Type A soft material, ncluding type R1 and type R2 hard materials													
6.1.1.3	depth 0 m to 2.0 m	m3	57											
6.1.1.4	Judgeford Underpass - Bridge abutment and wingwall	m3	57											
	Bridge 3 - Type A soft material, including type R1 and type R2 hard materials													
6.1.1.5	depth 0 m to 2.0 m	m3	40											
6.1.1.6	Bridge 3 - Bridge abutment and wingwall	m3	40											
6.2	Demolition and dismantling installations													
	Demolition - to waste, including timber, concrete and masonry buildings, structures, etc.													
6.2.1	(building or structure indicated)													
6.2.1.1	Bridge 2 - Partial Hydro Demolition	LS	1											
6.2.1.2	Judgeford Underpass - Partial Demolition	LS	1											
6.2.1.3	Bridge 3 - Partial Hydro Demolition	LS	1											
	Backfill													
6.2.2	(material indicated - all depth ranges)													
6.2.2.1	Bridge 2 - Imported AP65 granular material	m3	290							522	t			Assuming density of aggregate of 1800kg/m3 (CI AECOM)
6.2.2.2	Judgeford Underpass - Imported AP40 granular material	m3	50							90				Assuming density of aggregate of 1800kg/m3 (CI AECOM)
6.2.2.3	Judgeford Underpass - Imported AP65 granular material	m3	40							72	t			Assuming density of aggregate of 1800kg/m3 (CI AECOM)
6.2.2.4	Bridge 3 - Imported AP65 granular material	m3	100							180	t			
6.4	Piles													
	Piling plant													
6.4.1	establish on site	No	1											
	Piling plant													
6.4.2	set up at each pile	No	8											
	Install piles													
6.4.3	(application, diameter, type, and depth range indicated)													
6.4.3.1	Bridge 2 - Abutment A&B H-steel pile; 310UC 158; L 10m long	m	60											
6.4.3.2	Bridge 2 - Pier H-steel pile; 274BP 147; L 10m long	m	20											
	Socket p les into bedrock extra over install piles													
6.4.4	(application, diameter, type, and depth range indicated)													
6.4.4.1	Bridge 2 - Abutment A&B H-steel pile; 310UC 158; L 10m long	m	9											
6.4.4.2	Bridge 2 - Pier H-steel pile; 274BP 147; L 10m long	m	3											
6.5	Formwork and Concrete Finish													
	Formwork													
6.5.1	(orientation, surface finish, and application indicated)													
	Bridge 2 - Vertical F2 Buried faces of abutment, wingwall &													
6.5.1.1	approach slab, footpath	m2	33											
	Bridge 2 - Vertical F4 Exposed faces of abutment, wing wall, kerb													
6.5.1.2	and beam	m2	150											
6.5.1.3	Bridge 2 - Horizontal F4 Exposed faces of deck slab & beam	m2	54											
	Bridge 2 - Horizontal U3 Exposed top surfaces of abutment, kerb													
6.5.1.4	and wingwall	m2	12											
6.5.1.5	Bridge 2 - Horizontal U6 Exposed faces of deck slab & footpath	m2	68											
	Judgeford Underpass - Vertical F2 Buried faces of abutment,													
6.5.1.6	wingwall & approach slab, footpath	m2	19											
	Judgeford Underpass - Vertical F4 Exposed faces of abutment,													
6.5.1.7	wing wall, kerb and beam	m2	3											
	Judgeford Underpass - Horizontal U6 Exposed faces of deck slab &													
6.5.1.8	footpath	m2	16											
	Bridge 3 - Vertical F2 Buried faces of abutment, wingwall &													
6.5.1.9	approach slab, footpath	m2	63											
	Bridge 3 - Vertical F4 Exposed faces of abutment, wing wall, kerb													
6.5.1.10	and beam	m2	314											
6.5.1.11	Bridge 3 - Horizontal F4 Exposed faces of deck slab & beam	m2	60											
	Bridge 3 - Horizontal U3 Exposed top surfaces of abutment, kerb													
6.5.1.12	and wingwall	m2	13											
6.5.1.13	Bridge 3 - Horizontal U6 Exposed faces of deck slab & footpath	m2	70											
6.6	Reinforcement													
	Steel bars													
6.6.1	(type and structural characteristics indicated)													
	Bridge 2 - Grade 500E MA deformed steel bars up to and including													
6.6.1.1	25 mm diameter	t	7			7	t							
	Judgeford Underpass - Grade 500E MA deformed steel bars up to													
6.6.1.2	and including 25 mm diameter	t	3			3	t							
	Bridge 3 - Grade 500E MA deformed steel bars up to and including													
6.6.1.3	25 mm diameter	t	8			8	t							
6.7	Concrete													
	Cast in situ concrete													
6.7.1	(28 day strength and application indicated)													
	Bridge 2 - 40 MPa structural concrete including abutments, ins tu													
6.7.1.1	beams, slabs, settlement slabs and piers	m3	43	16.13	t									Concrete at 2.5t/m3
	Judgeford Underpass - 40 MPa structural concrete including													
6.7.1.2	abutments, insitu beams, slabs, settlement slabs and piers	m3	15	5.63	t									Concrete at 2.5t/m3
6.7.1.3	Judgeford Underpass - 40 MPa structural concrete in footings in	m3	3	1.13	t									Concrete at 2.5t/m3
	Bridge 3 - 40 MPa structural concrete including abutments, ins tu													
6.7.1.4	beams, slabs, settlement slabs and piers	m3	50	18.75	t									Concrete at 2.5t/m3
6.9	Bearings and Joints													
	Joints													
6.9.2	(type indicated)													
6.9.2.1	Bridge 2 - Mortar Bedding	No	2											
6.9.2.2	Bridge 2 - Dowels HD20, Hilti hit RE500 res n, 600mm long	No	38											
6.9.2.3	Judgeford Underpass - Reid bar RB20, ga anised and grouted	No	7											
6.9.2.4	Bridge 3 - Dowels HD20, Hilti hit RE500 res n, 700mm long	No	12											
6.10.1	Balustrades, Barriers, and Fitting													
	Bridge barriers													
6.10.2	(description indicated d drawings eferenced)													
	Bridge 2 - Bridge barrier 4 Thriebeam and TL4 WRSB cast-in													
6.10.2.1	fittings	m	24											
	Judgeford Underpass - Bridge barrier TL4 Thriebeam and TL4													
6.10.2.2	WRSB cast-in fittings	m	10											
	Bridge 3 - Bridge barrier TL4 Thriebeam and TL4 WRSB cast-in													
6.10.2.3	fittings	m	26											
6.11	Bridge Surfacing													
	Asphaltic concrete surfacing													
6.11.1	(type and thickness indicated)													
6.11.1.1	Bridge 2 - Mix 10 AC levelling course 0-30mm	m2	110					4.95	t					1.5t/m3
6.11.1.2	Bridge 2 - Mix 20 AC levelling course 40-80mm	m2	110					6.6	t					1.5t/m3
6.11.1.3	Judgeford Underpass - Mix 10 AC levelling course 0-30mm	m2	48					2.16	t					1.5t/m3
6.11.1.4	Judgeford Underpass - Mix 20 AC levelling course 40-80mm	m2	48					2.88	t					1.5t/m3
6.11.1.5	Bridge 3 - Mix 10 AC levelling course 0-30mm	m2	156					7.02	t					1.5t/m3
6.11.1.6	Bridge 3 - Mix 20 AC levelling course 40-80mm	m2	156					9.36	t					1.5t/m3
D7	RETAINING WALLS													
7.1	Excavation and backfil ing													
	Excavation													
7.1.1	(material classification and depth ranges indicated)													
	Type A soft material, including type R1 and type R2 hard materials													
7.1.1.1	depth 0 m to 2.0 m	m3	250									500	l	2l/m3 earthworks
	Type A soft material, including type R1 and type R2 hard materials													
7.1.1.2	depth 2.0 m to 4.0 m	m3	50									100	l	2l/m3 earthworks
	Type A soft material, including type R1 and type R2 hard materials													
7.1.1.3	depth 4.0 m to 10.0 m (Provisional item)	m3	50									100	l	2l/m3 earthworks
	Backfill													
7.1.3	(application and material indicated - all depth ranges)													
	Behind gabion faced MSE walls with subgrade quality material													
7.1.3.2	imported from commercial sources (i.e. AP65)	m3	250									500	l	2l/m3 earthworks
7.4	Mechanically Stabi ised Earth Walls													

SH58 Haywards Safety Improvements

Construction Schedule

Source Extracted from SH58 Safety Improvements RFT - Schedule of Prices (SP2B STN4680 - 77890 (Harris to Flightys) Rev 0C); provided by WK

Schedule of Prices

Code	Description	Unit	Quantity	Material Concrete	Unit t / m3	Material Steel	Unit t / m3	Material Asphalt	Unit t / m3	Material Aggregates	Unit t / m3	Material Fuel	Unit l / kg	Assumptions / Notes
	MSE foundations													
7.4.1	(type and material indicated)													
														Assuming density of aggregate of 1800kg/m3 (CI AECOM)
7.4.1.1	AP65 compacted material	m3	50							90	t			
	MSE geogrid reinforcement													
7.4.2	(strength class indicated)													
	Terramesh OR an Uniaxial monolithic HDPE													
7.4.2.1	60 kN/m tensile strength (ie Tensar RE540)	m2	500											
	Uniaxial monolithic HDPE													
7.4.2.2	120 kN/m tensile strength (Provisional Item)	m2	50											
	Uniaxial monolithic HDPE													
	144 kN/m tensile strength (ie Tensar RE580) For RSS @ STN													
7.4.2.3	4995	m2	800											
	MSE facing													
7.4.3	(size, type, colour, and height ranges indicated)													
7.4.3.7	Green RSS Facing for Wall @ STN 4995	m2	109											
	Gabion facing													
7.4.5	(gabion type and material indicated)													
	PVC coated wire gabions filled with rock sourced from commercial													
7.4.5.1	sources - 1 meter high wall	m3	10											
	PVC coated wire gabions filled with rock sourced from commercial													
7.4.5.2	sources - 2 meter high wall	m3	80											
	PVC coated wire gabions filled with rock sourced from commercial													
7.4.5.3	sources - 3 meter high wall	m3	20											
7.4.5.5	70 degree green Terramesh facing (Provisional tem)	m2	20											
7.5	Geotextiles													
	Combined filtration and separation													
7.5.1	(filtration and strength classes indicated)													
	Filtration Class 1, Strength Class C													
7.5.1.1	(e.g. Bidim A29) installed behind gabion baskets	m2	500											
7.6	Drains													
	Subsoil drains													
7.6.1	(diameter, type, and application indicated)													
	160 mm ND filter-wrapped perforated corrugated pipe (NEXUSFLO													
7.6.1.2	or Equiv.)	m	55											
7.7	Slope Reinforcement, Stabilisation and Ground Improvements													
	Drilling plant													
	establish on site													
7.7.1	(type indicated)													
7.7.1.1	Rock bolt and horizontal drain drilling plant establishment	No	1											
7.7.1.2	Slope reinforcement works, mobilisation and demobilisation	No	2											
7.7.1.3	Rock bolt drilling plant standing time	hr	10											
	Rock bolts, soil nails, and anchors													
7.7.2	(type and length indicated)													
	Grouted bar anchors (nominally 5m long for use with SD 460, and 461)													
7.7.2.1	PROVISIONAL ITEM	No	230											
7.7.2.4	DCP soil anchor (nominally 12m long, SD472)	No	12											
7.7.2.5	Concrete whaler beam (SD472)	m	20											
	Sprayed concrete													
7.7.3	(strength, thickness and reinforcing indicated)													
	30 MPa 200 mm thick mesh reinforced (SD461)													
7.7.3.3	PROVISIONAL ITEM	m2	250											
	Rock fall netting, pins, and anchors													
7.7.4	(type and location indicated)													
	Mesh stabilisation facing (SD460) including anchor plates and fixings													
7.7.4.1	PROVISIONAL ITEM	m2	100											
7.7.5	Ground Improvements													
7.7.5.1	Ground improvements or slope stabilisation below the proposed wal	PS	1											
7.7.6	Horizontal Drainage													
7.7.6.1	50mm PVC slotted pipe in 75mm Dia. hole, nominally 5m (SD 452)	No	40											
D8	TRAFFIC SERVICES													
8.1	Road Safety Barrier Systems													
	Dismantle and remove existing road safety barrier system to storage for re-use													
8.1.1	(type indicated)													
8.1.1.1	W-beam barrier on timber posts and block outs	m	445			5.0285	t							11.3kg/m (https //www.csppacific.co.nz/)
	Re-erect recovered road safety barrier system													
8.1.2	(test level, type, and application indicated)													
	W-beam bridge barrier on new bolt down bridge posts with new													
8.1.2.3	fastenings	m	27			0.3051								11.3kg/m (https //www.csppacific.co.nz/)
	Thrie-beam barrier on new steel I posts and modified block outs													
8.1.2.7	with new fastenings	m	12			0.356	t							11.3kg/m (https //www.csppacific.co.nz/)
	Semi-rigid and rigid roadside safety barriers													
8.1.3	(type indicated)													
	W-beam roadside barrier on													
	driven steel weak posts													
8.1.3.5	MASH TL3	m	1890			21.357	t							11.3kg/m (https //www.csppacific.co.nz/)
	W-beam roadside barrier on													
	bolt-down steel posts													
8.1.3.7	MASH TL3	m	2			0.2486	t							11.3kg/m (https //www.csppacific.co.nz/)
	Thrie-beam roadside barrier on													
8.1.3.8	steel I posts with modified block outs NCHRP350 TL4	m	25			0.2825	t							11.3kg/m (https //www.csppacific.co.nz/)
	Thrie-beam roadside barrier on													
8.1.3.9	bolt-down steel posts with modified block outs NCHRP350 TL4	m	30			0.339	t							11.3kg/m (https //www.csppacific.co.nz/)
	Thrie-beam roadside barrier on													
	bolt-down steel posts with custom narrow modified block outs													
8.1.3.10	NCHRP350 TL4	m	27			0.3051	t							11.3kg/m (https //www.csppacific.co.nz/)
	Reinforced concrete footings (2x individual foundations required per													
	transition) for W-Section - Bridge barrier transtion (NZTA Standard													
8.1.3.12	Detail B1)	No	3											
	Reinforced concrete footings (2x individual foundations required per													
	transition) for Thriebeam - Bridge barrier transtion (NZTA Standard													
8.1.3.13	Detail B3)	No	6											
	Ground beam for semi-rigid and rigid barrier systems with bolt-down steel posts													
8.1.3.15	(NZTA TM2012 or supplier's equivalent) PROVISIONAL ITEM	m	200											
	Rigid roadside and median safety barriers													
8.1.6	(type and dimensions indicated)													
	F-Shape barrier 915 mm high													
8.1.6.3	(NZTA M23 compliant) NCHRP350 TL4	m	600	400	t									2t per 3m
	Flexible safety barrier systems													
8.1.9	(type indicated)													
	Wire rope barrier system													
8.1.9.1	(NZTA M23 compliant) NCHRP350 TL4	m	4670											
	Wire rope barrier system on bolt down posts over structure													
8.1.9.2	(NZTA M23 compliant) NCHRP350 TL4	m	30											
	Safety barrier terminals													
8.1.10	(type indicated)													
8.1.10.1	W-beam leading end terminal (NZTA M23 compliant) MASH TL3	No	17											
8.1.10.2	W-beam curved trailing end terminal	No	22											
	10 m radius curved Thriebeam terminal treatment on driven steel													
	weak posts to manufacturer's specifications, including intermediate													
8.1.10.11	anchor	No	1											
	10 m radius curved W-beam terminal treatment on bolt down steel													
	posts to manufacturer's specifications, including ground beam and													
8.1.10.13	intermediate anchor	No	1											
	15 m radius curved W-beam terminal treatment on driven steel weak													
	posts to manufacturer's specifications, including intermediate													
8.1.10.14	anchor	No	1											
	Wire rope safety barrier terminal													
8.1.10.18	(NZTA M23 compliant) NCHRP350 TL3	No	22											
	Safety barrier transitions and intermediate anchors													
8.1.13	(type indicated)													
	Leading thrie-beam to rigid barrier transition													
8.1.13.7	(NZTA Standard Detail RSB-5 - 10m Long)	No	2											
	Trailing thrie-beam to rigid barrier transition													
8.1.13.8	(NZTA Standard Detail RSB-5 - 6m Long)	No	2											
8.1.13.12	Wire rope safety barrier intermediate anchor	No	2											
8.2	Pavement Markings and Delineation													
	Line markings													
8.2.2	(width, type, colour, material indicated)													
	150 mm continuous white													
8.2.2.2	reflectorised paint	m	12540											
	100 mm broken white													
8.2.2.5	reflectorised paint	m	770											
	200 mm broken white													
8.2.2.7	reflectorised paint	m	69											
	100 mm broken yellow													
8.2.2.8	reflectorised paint	m	330											
	300 mm white limit lines													
8.2.2.9	reflectorised paint	m	37											
	900 mm diagonal white chevrons													
8.2.2.13	reflectorised paint	m	133											
	Audio tactile profiled line markings													
8.2.3	(width, type, colour, indicated)													
8.2.3.2	150 mm continuous white	m	12540											
	Symbols													
8.2.4	(type, material, application, colour, indicated)													

SH58 Haywards Safety Improvements — Construction Schedule

Source Extracted from SH58 Safety Improvements RFT - Schedule of Prices (SP2B STN4680 - 77890 (Harris to Flightys) Rev 0C); provided by WK

Schedule of Prices

Code	Description	Unit	Quantity	Material Concrete	Unit t r m3	Material Steel	Unit t r m3	Material Asphalt	Unit t r m3	Material Aggregates	Unit t r m3	Material Fuel	Unit l r kg	Assumptions/ Notes
	7.2 m nominal length white lane arrows													
8.2.4.3	reflectorised paint	No	2											
	6.1 m white Give Way triangle													
8.2.4.5	reflectorised paint	No	4											
	Raised pavement markers													
8.2.5	(type and colour indicated)													
8.2.5.2	White uni-directional RRPMs	No	77											
8.2.5.4	Red uni-directional RRPMs	No	385											
8.2.5.5	Yellow uni-directional RRPMs	No	385											
	Edge marker posts													
8.2.6	(type indicated)													
8.2.6.1	Ground mounted wh te plastic edge marker posts	No	220											
8.3	Road Signs													
8.3.1	Recover and stack existing road signs	No	11											
8.3.2	Re-erect recovered road signs	No	7											
	Regulatory and warning signs													
	single post													
8.3.3	(type, grade, and size ranges indicated)													
	Class 1 High Intensity - Aluminium posts													
8.3.3.4	0.2 m2 to 0.4 m2 (typ 600 mm diameter)	No	11											
	Class 1 High Intensity - Aluminium posts													
8.3.3.5	0.4 m2 to 0.6 m2 (typ 750 mm diameter)	No	26											
	Class 1 High Intensity - Aluminium posts													
8.3.3.6	0.6 m2 to 0.9 m2 (typ 900 mm diameter)	No	8											
	Guide, motorist service, tourist, and general information signs													
	multiple posts													
8.3.4	(type, grade, and size ranges indicated)													
	Class 1 High intensity - Steel posts													
8.3.4.5	0.5 m2 to 1.2 m2	No	1											
	Class 1 High intensity - Steel posts													
8.3.4.6	1.2 m2 to 3.0 m2	No	11											
	Class 1 High intensity - Steel posts													
8.3.4.8	6.0 m2 to 9.0 m2	No	1											
	Class 1 High intensity - Steel posts													
8.3.4.9	9.0 m2 to 12.0 m2	No	4											
8.5	Lighting													
	Trenching and ducts													
8.5.1	(duct diameter, type, and trench depth indicated)													
	40 mm orange PVC with marker tape													
8.5.1.1	in trenches up to 1.5 m deep	m	1100											
	Trenchless drilling or thrusting and ducts													
8.5.4	(size, type, and position indicated)													
8.5.4.1	40 mm orange PVC drilled or thrust under carriageway	m	55											
	Cables													
8.5.10	(size and type indicated)													
8.5.10.1	16mm2 1 core neutral screen cable	m	1155											
	Lighting columns													
8.5.11	(type, height, and outreach indicated)													
	AEC Italo 2 (STE-SW 4000K 525mA 4M) 76W LED and 12m SB													Calculation provided by AECOM quantity surveyor 19/07/21
8.5.11.4	Lighting Pole C/W 2m Arm	No	15			13.5	t							
	AEC Italo 2 (STW 4000K 525mA 4M) 76W LED and 12m SB													Calculation provided by AECOM quantity surveyor 19/07/21
8.5.11.5	Lighting Pole C/W 2m Arm	No	1			0.9	t							
	AEC Italo 2 (STW 4000K 525mA 6M) 112W LED and 12m SB													Calculation provided by AECOM quantity surveyor 19/07/21
8.5.11.7	Lighting Pole C/W 2m Arm	No	2			1.8	t							
8.5.11.8	AEC Italo 2 (STW 4000K 525mA 4M) 76W LED on existing column	No	1											
8.5.12	Removal of lighting													
	Remove and dispose existing luminaire and bracket arm from													
8.5.12.2	existing power poles	No	1											
	Lighting control equipment													
8.5.15	including identification of and connection to power supply	LS	1											
D9	SERVICE RELOCATIONS													
9.1	Telecommunications													
9.1.1	Vodafone service relocation	PS	1											
9.1.2	Chorus service relocation costs	PS	1											
9.2	Electrical Power													
9.2.1	Overhead power lines	PS	1											
9.2.2	Underground power cables	PS	1											
9.3	Water													
9.3.1	Water mains and pipelines	PS	1											
9.4	General													
9.4.1	Pot holing													
9.4.1.1	Pot holing 400mmx400mm	No	28											
D10	LANDSCAPING AND URBAN DESIGN													
10.1	Topsoil													
	Topsoil													
	using stockpiled material													
10.1.1	(nominal thickness and app ication indicated)													
10.1.1.1	100 mm thick to grassed verges, Mix 6	m2	13750									2750	l	2l/m3
10.1.1.2	100 mm thick to grassed swales, Mix 7	m2	11000									2200	l	2l/m3
	Topsoil													
	using material from commercial sources													
10.1.2	(nominal thickness and app ication indicated)													
	300 mm thick to planted areas (fi l batters and amenity planting), Mix													
10.1.2.3	2, Mix 4	m2	13200									7920	l	2l/m3
10.1.2.4	300 mm thick to riparian areas, Mix 3	m2	11000									6600	l	2l/m3
10.1.2.6	Slopes flatter than 1 2 300 mm thick, Mix 1	m2	3025									1815	l	2l/m3
	Ground covering													
10.1.5	(type and thickness indicated)													
10.1.5.2	Bark mulching 75 mm thick, Mix 4	m2	6465									969.75	l	2l/m3
10.2	Planting													
	Grass - seeded													
10.2.1	(method and seed mixture indicated)													
10.2.1.1	Grass seed - Mix 6	m2	3750											Exclude as likely to be immaterial based on previous research by Waka Kotahi.
10.2.1.2	Grass Seed - Mix 7	m2	11000											Exclude as likely to be immaterial based on previous research by Waka Kotahi.
	Hydroseeding low fertility/drought mix													
	60 % sports (dwarf) rye grass													
	20 % Chewings type red fescue													
	10 % creeping type red fescue													
	5 % Kentucky blue grass													Exclude as likely to be immaterial based on previous
10.2.1.7	5 % brown top	m	8250											research by Waka Kotahi.
	Shrubs, Mix 1, 2, 3,and 4													
10.2.2	(species, size, and spacing indicated)													
														Exclude as likely to be immaterial based on previous
10.2.2.8	Shrubs - 1L Grade	No	28325											research by Waka Kotahi.
10.2.2.9	Shrubs - 5L Grade	No	2475											
	Trees													
10.2.3	(species and size indicated)													
10.2.3.1	Trees - 45L / Pb95 Grade (h 1.5 m - 2.5 m	No	250											
	Street tree accessories													
10.2.4	(size and type indicated)													
10.2.4.1	Tree pits (size and type indicate)	No	250											
10.5	Fences, Gates, and Handrail													
	Temporary fences													
	including maintenance a d removal													
10.5.1	(type and location ind ted)													
10.5.1.1	Seven wire and timber po t fence	m	1375											
	Existing fences													
	dismantle and dispose													
10.5.3	(type and location indicated)													N/A
10.5.3.1	Seven wire and timber post fence	m	2475											Assume timber material, likely t be immaterial based n previ us research based f r Waka K tahi.
	Fences													
10.5.5	(type indicated or drawing referenced)													
10.5.5.1	Seven wire and timber post fence	m	3300											Assume timber material, likely t be immaterial based n previ us research based f r Waka K tahi.
10.9	Maintenance													
10.9.1	Maintenance of hard and soft landscape													
	Maintenance of hard and soft landscape during extended Defects													
10.9.1.1	Liabil ty Period	LS	1											N/A
D11	TRAFFIC MANAGEMENT													
11.1	Traffic Management													N/A
11.1.1	Temporary traffic management plan preparation													N/A
11.1.1.1	Preparation of site specific temporary traffic management plan	LS	1											N/A
	Temporary traffic management - implementation, management and													
11.1.2	maintenance													N/A
	Maintenance of temporary traffic management (within the extents of													
11.1.2.1	the site)	month	11											N/A
														N/A
D12	PRELIMINARIES AND GENERAL													N/A
12.1	Estab ishment etc.													N/A
	Allowance for all fixed costs associated with the Contractor's													
12.1.2	establishment and disestablishment	LS	1											N/A
12.1.3	Allowance for all time-related costs not included in other tems	month	11											N/A
12.3	Plans, Operating Manuals, Records, etc.													N/A
	Contract Plan Preparation													
12.3.1	(as indicated)													N/A
12.3.1.1	Construction management plan	LS	1											N/A

SH58 Haywards Safety Improvements — Construction Schedule

Source Extracted from SH58 Safety Improvements RFT - Schedule of Prices (SP2B STN4680 - 77890 (Harris to Flightys) Rev 0C); provided by WK

Schedule of Prices				Material	Unit	Material	Unit	Material	Unit	Material	Unit	Material	Unit	
Code	Description	Unit	Quantity	C ncrete	t r m3	Steel	t r m3	Asphalt	t r m3	Aggregates	t r m3	Fuel	l r kg	Assumpti ns/ N tes
12.3.1.2	Hea th and safety plan	LS	1											N/A
12.3.1.3	Environmental management plan	LS	1											N/A
12.3.1.4	Communication plan	LS	1											N/A
12.3.1.5	Quality assurance plan	LS	1											N/A
12.3.1.6	Construction programme	LS	1											N/A
12.3.1.7	Traffic Management Plan	LS	1											N/A
	Owner's operating manuals, lega isation surveys, as-bu lt drawings, RAMM data, bridge update data, photography, etc.													
12.3.2	(as indicated)													N/A
12.3.2.1	As-built drawings	LS	1											N/A
12.3.2.2	RAMM data	LS	1											N/A
12.4	Accommodation Works													N/A
12.4.0.1	Accommodation Works	PS	1											N/A
12.9	Culvert survey													N/A
12.9.1	3D survey of all culvert a ignments following site clearance	LS	1											N/A
D13	EXTRAORDINARY CONSTRUCTION COSTS													
	Unscheduled Works													
13.1.1	Refer to Schedule B and C	-	-											
			Total	2 099	t	133	t	21 683	t	54 948	t	226 973	l	