AECOM

Detailed Design - SiD Assessment

AECOM Project Name:	Leith Connections (Foot of the Walk to Ocean Terminal)
AECOM Project No:	60592779

Risk Rating (Probability x Severity)
1 to 4 (Low)
5 to 9 (Medium)
10 to 25 (High)

Probability	Severity: 5 - Catastrophic	4 – Critical	3 – Major	2 – Moderate	1 - Minor
5 – Frequent	25	20	15	10	5
4 – Probable	20	16	12	8	4
3 – Occasional	15	12	9	6	3
2 – Remote	10	8	6	4	2
1 – Improbable	5	4	3	2	1

Hazard and Risk Identification						Pre-mitigation assessment			Mitigation	Post-mitigation assessment				Output				
Item No.	Feature, element, structures, process or activity considered	Client's or other H&S Information used	Significant Design Hazards Identified	Design Risks Identified	Environment/Persons at Risk?	Severity	Probability	Risk Factor	Design input Control to Eliminate or Reduce Hazard and/or Reduce Risk	Has Selected Control created a new Hazard? (Y/N)*	Severity	Probability	Risk Factor	Output Residual Hazard to Residual Hazard Log	Output Residual Risk to Residual Hazard Log	Ownership	Output Residual Design Hazard Feedback Location	Closeout date for Output
3	Public utilities	Public utility plans from client and GPR survey.	Buried services or overhead lines.	Risk of striking buried services/overhead lines resulting in damage to lines or injury/death.	Construction Workers.	5	2	10	Public utility plans from client to identify location of plant in the area. GRP survey was done to aid in identifying the location of buried services.	NO	5	1	5	Buried services or overhead lines.	Risk of striking buried services/overhead lines resulting in damage to lines or injury/death.	Contractor		
5	General site clearance and extensive road markings removal	Design drawings	Removal of road markings using lance and proximity to traffic can be hazardous to operatives.	Risk of burns and being struck by vehicles.	Construction Workers.	4	2	8	Maintain road markings where possible to minimise their removal. Consider use of hydroblasting to remove markings. The contractor would need to actively manage the risk by utilising a safe system of work.	YES	4	2	8	Removal of road markings using lance and proximity to traffic can be hazardous to operatives.	Risk of burns and being struck by vehicles.	Contractor		
6	Working with hot materials – bituminous and thermoplastic	Design drawings	Hot materials - bitumous and thermoplastics.	Risk of burns.	Construction Workers.	3	3	9	The contractor would need to actively manage the risk by utilising a safe system of work.	NO	3	3	9	Hot materials - bitumous and thermoplastics.	Risk of burns.	Contractor		
8	Reversing vehicles	Design drawings	Reversing vehicles could collide with other road users.	Risk of reversing vehicles, such as refuse vehicles, colliding with other vehicles or non-motorised users.	All road users.	4	2	8	Parking restrictions to be provided to ensure vehicles can undertake reversing movement without obstruction.	NO	4	2	8	Reversing vehicles could collide with other road users.	Risk of reversing vehicles, such as refuse vehicles, colliding with other vehicles or non-motorised users.	Designer		
9	Turning of large vehicles at closures	Design drawings	Large vehicles unable to perform u-turn manoeuvre at road closure location and may end up over-running footways.	Risk of reversing vehicles, such as refuse vehicles, colliding with other vehicles or non-motorised users.	All road users.	4	2	8	Designers to undertake swept path analysis of design using largest expected vehicle type. Modify design so that large vehicles can safely manouevre safely.	NO	3	3	9	Large vehicles unable to perform u-turn manoeuvre at road closure location and may end up over-running footways.	Risk of reversing vehicles, such as refuse vehicles, colliding with other vehicles or non-motorised users.	Designer		
10	Large vehicle access	Design drawings	Larger vehicles, such as refuse or delivery vehicles, may have to reverse into side streets in order to be able to access properties adjacent to closures.	Risk of vehicles colliding with parked vehicles or non-motorised users resulting damage to property and serious injury to non-motorised users.	Vehicles, cyclists, pedestrians and street furniture.	4	3	12	Access arrangements to be reviewed and agreed with CEC refuse team. Reversing to be limited to 15.0m distance (unless agreed otherwise). Bins to be relocated to avoid reversing manouevre if possible.	NO	3	2	6	Existing routes taken by emergency service vehicles may be severed by the proposed road closures.	There is a risk that emergency services could take longer to access areas where road closures have been proposed.	Designer/Client		
16	Emergency services vehicle access	Design drawings	Existing routes taken by emergency service vehicles may be severed by the proposed road closures.	There is a risk that emergency services could take longer to access areas where road closures have been proposed.	All road users.	4	4	16	Emergency services should be consulted on the proposals and designs should be altered to accomodate emergency vehicle movements.	NO	3	2	6	Existing routes taken by emergency service vehicles may be severed by the proposed road closures.	There is a risk that emergency services could take longer to access areas where road closures have been proposed.	Designer/Client		
17	New signals/street lighting	Design drawings	Working with electricity	Risk of electrocution leading to serious injury or death.	Construction workers.	5	2	10	The contractor would need to actively manage the risk by utilising a safe system of work.	NO	5	2	10	Working with electricity	Risk of electrocution leading to serious injury or death.	Contractor		
19	General traffic access over cycleway at side roads / minor access points	Design drawings	Vehicles crossing over cycleway at access points.	Risk of collision between vehicles and non-motorised users causing injury/death.	Cyclists, pedestrians.	4	3	12	Coloured surfacing to be used over cycleway to provide visual warning to drivers. Priority to be given to cyclists where possible and clear visibility of the crossing to be given to approaching drivers to ensure cyclists are visible. Set back crossing to be used where space permits and vehicle flows are high.	NO	4	2	8	Vehicles crossing over cycleway at access points.	Risk of collision between vehicles and non-motorised users causing injury/death.	Designer/Client		
20	Proposed new bus stops	Design drawings	Buses pulling out of the proposed bus stops into traffic.	Risk of collision with other road users.	All road users.	4	3	12	A road safety audit should be performed to assess the suitability of the locations for the proposed bus stops. The responses from the audit should be considered to enhance the safety of the design.	NO	4	2	8	Buses pulling out of new bus stops.	Risk of collision with other road users.	Designer		
21	Proposed new loading bays	Design drawings	Delivery personnel are required to exit their vehicles adjacent to traffic.	Risk of collision between traffic and delivery vehicles/personnel.	All road users.	4	3	12	A road safety audit should be performed to assess the suitability of the locations for the proposed bus stops. The responses from the audit should be considered to enhance the safety of the design.	NO	4	2	8	Proximity to traffic can be hazardous to delivery personnel.	Risk of collision between traffic and delivery vehicles/personnel.	Designer		
22	Floating bus stops	Design drawings	Pedestrians accessing the bus stop are required to walk across the proposed cycleway.	Risk of collision between cyclists and pedestrains accessing bus stops.	Cyclists, pedestrians.	4	3	12	Crossing points marked using tactiles and zebra markings to indicate crossing location. Priority given to pedestrians where zebra markings are used. A road safety audit should be performed to assess the suitability of the locations for the proposed bus stops. The responses from the audit should be considered to enhance the safety of the design.	NO	4	2	8	Pedestrains accessing the bus stop are required to walk across the proposed cycleway.	Risk of collision between cyclists and pedestrains accessing bus stops.	Designer		
23	New controlled crossings	Design drawings	Pedestrians crossing the road with live traffic.	Risk that pedestrians may try to cross when not prompted to cross. Risk that motorists or cyclists will run red lights.	Pedestrians/motorists.	5	3	15	The crossings are controlled and have tactiles to indicate their location to the visually impaired. A road safety audit should be performed to assess the suitability of the locations for the proposed crossings. The responses from the audit should be considered to enhance the safety of the design.	NO	5	2	10	Pedestrians crossing the road with live traffic.	Risk that pedestrians may try to cross when not prompted to cross. Risk that motorists will run red lights.	Designer		
24	Proposed cycleway - width	Design drawings	The proposal is variable in width - a minimum of 2m and a maximum of 3m.	Risk of collision between cyclists on narrow sections.	Cyclists.	3	3	9	The subsequent design stage should include measures to indicate narrow sections on the cycleway. For instance, signing and lining should be used on approach to narrow sections to slow cyclists down and make them aware that the space is narrower.	NO	3	3	9	The proposal is variable in width - a minimum of 2m and a maximum of 3m.	Risk of collision between cyclists on narrow sections.	Designer		
26	Controlled parking zone	Design drawings	Proximity of car parking to traffic and poor visibility.	Risk of collision between traffic and vehicles attempting to access/egress parking spaces. Risk of collision between pedestrians and vehicles.	Motorists, pedestrians.	4	3	12	A road safety audit should be performed to assess the suitability of the locations for the proposed parking area. The responses from the audit should be considered to enhance the safety of the design. Parkings bays should be designed to the correct width according to the relevant standards.	NO	4	2	8	Proximity of parking zone to traffic and poor visibility.	Risk of collision between traffic and vehicles attempting to access/egress parking zone.	Designer		
27	Uncontrolled pedestrian crossings	Design drawings	Pedestrians crossing a live carriageway and cycleway.	Risk of collision between vehicles and cyclists with pedestrians.	Pedestrians, cyclists, motorists.	5	3	15	A road safety audit should be performed to assess the suitability of the locations for the uncontrolled crossings. The responses from the audit should be considered to enhance the safety of the design.	NO	5	2	10	Pedestrians crossing a live carriageway and cycleway.	Risk of collision between vehicles and cyclists with pedestrians.	Designer		
29	Excavations to install SuDS features	Design Drawings	Risk of working around open excavations and installing pipe within trench.	Risk of collapse of excavation	Site operatives	4	3	12	SuDS features kept as shallow as possible to reduce risk of having to excavate deep trench. Trench support may be required as part of the Contractor's temporary works but will be routine practice, similar to installation of other services.	NO	3	2	6					
30	Discharging into water of leith	Design drawings	Discharging runoff into water of leith	Risk of contaminents	Environmental	3	3	9	SuDS features are designed to filter runoff adequately so that no harmful level of contamination is passed into water of leith. In one instance the SuDS features actually improves the existing situlation	NO	2	2	4					
31	SuDs features adjacent to live traffic road	Design drawings	Loading of underground storage crates exceeds design capacity	Risk of collapse of crates	Road users / cyclists / pedestrians	5	2	10	Storage crates removed from design and features all utilise granular fill solutions	NO	2	1	2					
32	Raingardens surface below footpath level	Design drawings	Raingarden surface depression below the level of road/footpath surface surrounding it	Risk of trips and falls	Road users / cyclists / pedestrians	3	3	9	A kerb line will surround the perimeter of the raingarden reducing likihood of people from walking straight into the depression	NO	3	2	6					

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33	Discharging into surrounding soil	Design drawings	Surface water discharging from SuDS storage into surrounding ground	Risk of contaminated soil	Environmental	3	3	9	The below ground storage of the SuDS features will be lined with an impermeable membrane reducing the liklihood of surface water discharging into surrounding soil	NO	3	2	6					
34	Working with adverse weather	None	Working under extreme weather conditions	UV radiation, high & low temperatures, high winds, dust and mud.	Construction Workers.	4	3	12	Main Contractor must ensure all on site are aware of the results of over exposure to strong sunlight and ensure traffic routes are kept passable during periods of heavy rain when site conditions can be muddy. Main Contractor must ensure that working at height and lifting of materials is risk assessed, specially during periods of high wind. Main contractor to be aware risks due to wind-loading on lighting columns. During freezing conditions the Main Contractor must ensure care is taken using ladders & scaffolding.	NO	4	2	8	Working under extreme weather conditions	Working under extreme weather conditions	Contractor		
35	Manual handling trees	None	Lifting rootballed trees	Risk of injury	Construction Workers	4	3	12	Main Contractor to provide method of statements to minimise manual handling. Adequate lifting facilities to be provided.	NO	4	2	8	Lifting rootballed trees	Risk of injury	Contractor		
36	Manual handling planters	None	Lifting Planters	Risk of injury	Construction Workers	4	3	12	Main Contractor to provide method of statements to minimise manual handling. Adequate lifting facilities to be provided.	NO	4	2	8	Lifting Planters	Risk of injury	Contractor		
37	Connection to existing drainage infrastructure	Public utility plans from client and GPR survey.	Condition of existing infrastructure is unknown. Levels differ from those shown	Risk of damaging drainage infrastructure.	Infrastructure	4	3	12	The Main Contractor will be required to undertake a condition survey of these connections points and advise whether any repair work is required.	NO	4	2	8	Condition of existing infrastructure is unknown. Levels differ from those shown	Risk of damaging drainage infraestructure.	Contractor		
38	Pedestrian access to business / shops / houses during the construction of the works.	None	Interaction between general public and construction vehicles	Risk of collision between vehicles and non-motorised users causing injury/death.	General Public	5	3	15	Ensure Contractor is aware and appropriate measures are in place during construction stage to manage live site. Liaison required with existing site tenants to ensure adequate consideration is given to their requirements during construction	NO	5	2	10	Interaction between general public and construction vehicles	Risk of collision between vehicles and non-motorised users causing injury/death.	Contractor		
39	No tactile paving at continuous footways / vehicle cross overs	Edinburgh Street Design Guidance	Collision between pedestrian and vehicle	Risk of Injury	General Public	4	2	8	Only to be applied where vehicle flows are low enough as per ESDG. And consideration to be given to alternative paving flags to highlight change in use.	NO	4	1	4					
40	Gap in segregation of cycle lane at GJS / Henderson Street junction	None	Potential for left turning drivers to hit cyclists on inside cycle lane	Risk of collision between vehicles and non-motorised users causing injury/death.	General Public	4	3	12	Bollards to be added where feasible to deter vehicles from entering cycle lane	NO	4	2	8	Potential for left turning drivers to hit cyclists on inside cycle lane	Risk of collision between vehicles and non-motorised users causing injury/death.	Designer/Client		
41	dropped kerbs for cyclists to enter/exit cycle lane	None / other examples in Edinburgh	Collision between road users where cyclists enter cway or vehicles try to enter cycle lane	Risk of collision between vehicles and non-motorised users causing injury/death.	General Public	4	3	12	Bollards to be added where feasible to deter vehicles from entering cycle lane	NO	4	2	8	Collision between road users where cyclists enter cway or vehicles try to enter cycle lane	Risk of collision between vehicles and non-motorised users causing injury/death.	Designer/Client		
42	Stationary Buses obscuring traffic signal heads	CEC Traffic Signal Team guidance	Dwelling buses may block visibility of traffic signal head due to proximity of bus stop	Risk of collision between vehicles and non-motorised users causing injury/death.	General Public	3	3	9	Clear 23m visibiltiy to be maintained between passing vehicles and traffic signal heads	NO	3	2	6	Dwelling buses may block visibility of traffic signal head due to proximity of bus stop	Risk of collision between vehicles and non-motorised users causing injury/death.	Designer/Client		
43	Vehicles exiting car park between buildings at Shore	None	Poor intervisibility between road users	Risk of collision between vehicles and non-motorised users causing injury/death.	General Public	3	3	9	retain setts at vehicle exit to highlight change in use	NO	3	2	6	Poor intervisibility between road users	Risk of collision between vehicles and non-motorised users causing injury/death.	Designer/Client		
44	No waiting place between cycle lane and carriageway	None - discussion with Client	Pedestrians being caught between passing cyclists and vehicles on either side.	Risk of collision between vehicles and non-motorised users causing injury/death.	General Public	3	3	9	No mitigation	NO	3	3	9	Pedestrians being caught between passing cyclists and vehicles on either side.	Risk of collision between vehicles and non-motorised users causing injury/death.	Designer/Client		
45	Articulated Lorry needs to reverse into Quayside Street across cycle track	Swept Path Analysis	Potential for reversing lorry to collide with Cyclist	Risk of collision between vehicles and non-motorised users causing injury/death.	General Public	5	2	10	No mitigation	NO	5	2	10	Potential for reversing lorry to collide with Cyclist	Risk of collision between vehicles and non-motorised users causing injury/death.	Designer/Client		
46	Carriageway widths in some locations not wide enough for 2 way vehicular traffic	DMRB, ESDG	carriageway too narrow for large vehicles to pass side by side	Risk of collision between motor vehicles	General Public / Public Transport	4	3	12	Advice given to Lothian Buses regarding carraigeway widths.	NO	4	2	8	carriageway too narrow for large vehicles to pass side by side	Risk of collision between motor vehicles	Designer/Client		
47	Articulated Lorry needs to access Plumbase car park	Swept Path Analysis	Potential for exiting lorry to collide with Cyclist	Risk of collision between vehicles and non-motorised users causing injury/death.	General Public	5	3	15	Foliage to be cut back to ensure good inter-visibility	NO	5	2	10	Potential for exiting lorry to collide with Cyclist	Risk of collision between vehicles and non-motorised users causing injury/death.	Designer/Client		
48	Gaps in cycle lane segregation	None	Gaps may encourage motor vehicles to access cycle lane, or confuse cyclists who may exit the cycle lane	Risk of collision between vehicles and non-motorised users causing injury/death.	General Public	4	2	8	Bollards to be installed on segregation where feasible to prevent vehicluar access.	NO	4	1	4					