

Short Paper on Third Party Liability
Contractors' All Risks Insurance
Prepared for IMIA

Third Party Liability – Risk Scoring Assessment Charts

Executive Summary

Third Party Liability coverage for construction projects can be provided separately by General Liability policy as well as included in the relevant Contractors' All Risks policy under the Section II (ref. to MunichRe standard wording) and pricing can be calculated imputing related data (limit, extensions, deductibles, etc.) in the same pricing tool used to calculate the Material Damage rate.

Usually the most common pricing tools provide underwriters with a separate Third Party Liability rate/price quoted on the basis of the type of project, its rough location and the Third Party Liability terms and conditions set by underwriters in compliance with minimum deductibles and maximum limit of liability.

Third Party Liability exposure in respect of material damage and bodily injury is significantly affected by local features of the construction site and its surroundings.

The above circumstances cannot be adequately addressed in details just through a pricing tool based on a wide spectrum of risks which cannot mirror peculiar exposures calculating a "simple" rate.

The main purpose of the Third Party Liability Risk Scoring Assessment Charts is to support underwriters' decisions with regard to Third Party Liability exposure for some specific type of risks which could present critical issues in respect of this coverage.

Categorized risk ranking charts have been designed to provide underwriters with a representation of the risk in terms of Third Party Liability exposure, and make them conscious of which exposure could rise from this coverage and impact on the overall CAR loss ratio.

It should be noted that the Risk Scoring Assessment Charts do not suggest either a target pricing nor any additional charge/discount on the rate since this is left to the underwriters on the basis of their knowledge about the risk and the location.

Contents

Risk Scoring Assessment Charts have been established from underwriting experience for eight different categories of risk which may result in a severe Third Party Liability exposure (see annexes to this paper).

1. Tunnelling Works = Closed face tunnelling (e.g. NATM, Drill & Blast, TBM, etc.) including underground caverns
2. Cut & Cover Tunnelling Works = Cut & Cover tunnels and underground structures with open pit excavation methodology (e.g. train/metro station, car parks, sewer pipe, etc.)

3. Buildings = Residential and non residential buildings (e.g. apartments, offices, etc.) including high rise structures or other civil structures requiring deep foundations (e.g. water tanks, towers, etc.)
4. Bridges and Viaducts = All types of bridges and viaducts including motorway/railway's flyovers
5. Roads and Railways = Road and railway works (urban areas and country side) including expansion and refurbishment projects
6. Airports = New airports or extension projects including landing strips, infrastructures and E&M installations but excluding air terminals (refer to Large Span Buildings)
7. Dams and Hydroelectric Power Plant (civil works only) = Dams, intakes, barrages, above ground pipeline, conduits, penstocks, etc. excluding tunnelling works for diversion tunnels and/or other underground facilities (power house)
8. Large Span Structure = Industrial plants (excluding machinery), warehouses, shopping malls, hangar, transport terminals and any other similar structure

For each of the above categories the following topics have been identified:

1. Hazards = Main risks which could affect Third Party property near the construction site
2. Causes = Main events related to construction activity that can trigger one or more Hazards
3. Impacts = Most common material damages to Third Party properties or bodily injuries resulting from one or more Hazards (not directly linked to Hazards and Causes because one of the them can trigger more impacts)
4. Exposure Ranking = Synthetic risk scoring related to each single Impact and based on Frequency and Severity indexes
5. Risk Assessment = Tips on technical information to be carefully checked to properly assess the exposure (e.g. hard rocks spread vibrations much more than un-cohesive soil which is more prone to collapses or settlements)
6. Control Measures = Preventative measures like compliance with proper codes of practice or availability of spare parts/back-up equipment which can be crucial in claims mitigation
7. Insurance Topics = Suggestions on wording exclusions/sublimits/deductibles to be considered in underwriting Section II –TPL of a CAR policy

Frequency and severity categories which contribute to defining the risk ranking have been referred on tangible elements of the insurance business.

Frequency scoring is based on a descriptor directly linked to events which can trigger unfavourable conditions in relation to the risk environment/location or ordinary operations.

Score	Descriptor	Description
1	Improbable	Circumstances triggered by a series or combination of events most of them unlikely in relation to the type of risk and environment/location
2	Unlikely	Circumstances triggered by an exceptional event which is anyway possible in relation to the type of risk and environment and/or location
3	Possible	Circumstances triggered by an event which is the result of ordinary operations although all the possible precautions have been adopted
4	Frequent	Circumstances which are almost certain to happen or more likely to happen than not

Severity scoring is based on a descriptor referring to the size of a possible claim in terms of number of damaged entities, third party activities interruption, loss amount in comparison with the relevant deductible and effects on the loss ratio.

Score	Descriptor	Description
1	Minor	Minor damages to a limited number of entities (not more than 2/3) without interruption of public utilities or TP activities. Amount of the loss for each damaged entity not exceeding 3/4 times the TPL deductible (material damages). Slight worsening of the Loss Ratio.
2	Moderate	Possible relevant/structural damages to a certain number of entities or to a critical item without interruption of public utilities or TP activities. Amount of the loss for each damaged entity noticeably exceeding the TPL deductible (material damages). No substantial worsening of the Loss Ratio.
3	Significant	Relevant/structural damages to a certain number of entities or to a critical items including bodily injury and with possible interruption of public utilities or TP activities. Amount of the loss for each damaged entity and in the aggregate widely exceeding the TPL deductible (MD). Noticeable worsening of the Loss Ratio.
4	Substantial	Extensive damages (collapse) to several entities or critical items including bodily injury and interruption of public utilities or TP activities. Amount of the loss for each damaged entity widely exceeding the TPL deductible (material damages) and reaching 100% of the premium in the aggregate. Overall Loss Ratio completely jeopardized.

Finally the synthetic risk ranking – low (L), medium (M) or high (H) exposure – results from the scoring table here below.

		SEVERITY			
		1	2	3	4
FREQUENCY	4	M	H	H	H
	3	M	M	H	H
	2	L	M	M	H
	1	L	L	M	M

Type of Works	Hazards	Causes	Impacts	Exposure Ranking			Risk Assessment	Control Measures	Insurance Topics					
				F	S	R								
Tunneling works <i>(closed face incl. underground cavern)</i>	<ul style="list-style-type: none"> • Collapse • Vibration • Removal or weakening of supports • Underground cables and pipes • Bodily injuries 	<ul style="list-style-type: none"> • Loss of support due to poor quality of tunnel lining or joint • Loss of support due to unexpected geological conditions • Instability of tunnel face • Loss of slurry pressure (tunneling by EPB TBM) • Dewatering of overburden • Existence of cavity/void near the tunnel • Tunnel boring operations 	<ul style="list-style-type: none"> • Excessive settlement of TP structures and buried services resulting in structural damages • Cracks • Total or partial collapse • Injury or death to TP and/or workers • TP activities business interruption • Accidental pollution due to toxic slurry 	3/4*	3	H	<ul style="list-style-type: none"> • Tunnel boring method (NATM, drill & blast, TBM) • TP exposure related to the location (Urban areas, country side, etc.) • Overburden • Geotechnical conditions (Soil classification, rocks leaning to transmit vibrations, max unsupported bored sections staying, etc.) 	<ul style="list-style-type: none"> • Surface monitoring • Identification and monitoring of u/g services • Compliance with TCoP (incl. Emergency and Contingency plans) • Slurry pressure continuous monitoring for EPB TBMs • Back up installations for TBMs and Ground Freezing equipment 	<ul style="list-style-type: none"> • Dilapidation report • Sublimit VRWS and set proper deds • Sublimit Underground cables and set proper deds • Joint Tunneling Code of Practice clause • Limit TPL sum insured in the aggregate for the period • Set Deds per event • Exclude damages which are foreseeable (e.g. underpinning, excavation close to foundations, historical buildings) 					
				2/3*	2	M/H*				2/3*	4	H	2/3*	3
* The higher exposure rate refers to tunnels bored with traditional methods (NATM and drill & blast) or with overburden below 15/20m														
Cut&Cover tunneling works <i>(incl. underground structures like car parks)</i>	<ul style="list-style-type: none"> • Collapse • Vibration • Removal or weakening of supports • Underground cables and pipes • Bodily injuries 	<ul style="list-style-type: none"> • Loss of support due to failure of slopes retaining walls • Instability of slopes • Alteration of ground water level • Subsidence • Diaphragm walls construction, jet grouting or piling works • Ground water pumping off 	<ul style="list-style-type: none"> • Excessive settlement of TP structures and buried services resulting in structural damages • Cracks • Total or partial collapse • Injury or death to TP and/or workers 	2/3*	3	M/H*	<ul style="list-style-type: none"> • Excavation method and slopes support • TP exposure related to the location (Urban areas, country side, etc.) • Distance from existing structures • Geotechnical conditions and ground water level 	<ul style="list-style-type: none"> • Surface monitoring • Identification and monitoring of u/g services • Ground water level monitoring 	<ul style="list-style-type: none"> • Dilapidation report • Sublimit VRWS and set proper deds • Sublimit Underground cables and set proper deds • Limit TPL sum insured in the aggregate for the period • Set Deds per event • Exclude damages which are foreseeable (e.g. underpinning, excavation close to foundations, historical buildings) 					
				3/4*	2	M/H*				2	4	M	2	3
* The higher exposure rate refers to excavation below the ground water level or using slopes supports like driven sheet piles/jet grouting (mainly because of vibrations)														

Type of Works	Hazards	Causes	Impacts	Exposure Ranking			Risk Assessment	Control Measures	Insurance Topics
				F	S	R			
Buildings <i>(incl. other structures requiring deep foundations)</i>	<ul style="list-style-type: none"> • Fire • Collapse • Vibration • Removal or weakening of supports • Underground cables and pipes • Bodily injuries 	<ul style="list-style-type: none"> • Flammable construction material storage • Removal or weakening of supports due to foundations pit excavation • Deep foundations works • High rise scaffolding • Falling tower cranes • Construction sites in densely populated areas with limited surfaces 	<ul style="list-style-type: none"> • Fire damages to TP following construction material fire • Total or partial collapse of TP structures and buried services resulting in structural damages • Cracks • Injury or death to TP and/or workers 	2	3	M	<ul style="list-style-type: none"> • Type of foundations (bored piles, driven piles etc.) • TP exposure related to the location (Urban areas, country side, etc.) • Distance from existing structures • Geotechnical conditions and ground water level • Emergency plans and Fire fighting facilities 	<ul style="list-style-type: none"> • Surface monitoring • Identification and monitoring of u/g services • Ground water level monitoring • Construction site housekeeping • Storage units limitations • Compliance with Emergency plans and Fire code of practice 	<ul style="list-style-type: none"> • Dilapidation report • Sublimit VRWS and set proper deds • Sublimit Underground cables and set proper deds • Sublimit accidental pollution (slurry) • Incl. Fire fighting facilities clause • Incl. Camps and stores clause with proper sublimit
				2	2	L			
				3/4*	2	M/H*			
				1	3	L			
* The higher exposure rate refers to deep foundations with driven piles/jet grouting and/or slope supports by retaining walls (mainly because of vibrations)									
Bridges and Viaducts <i>(incl. flyover structures)</i>	<ul style="list-style-type: none"> • Collapse • Vibration • Removal or weakening of supports • Underground cables and pipes • Bodily injuries 	<ul style="list-style-type: none"> • Beams launching or casting • Piers/pylons construction • Removal or weakening of supports due to foundations pit excavation • Deep foundations works incl. micro piling • Falling cranes 	<ul style="list-style-type: none"> • Damages to TP properties following structures collapse • Total or partial collapse of TP structures and buried services resulting in structural damages • Damages to TP vehicles (open traffic) • Cracks • Injury or death to TP and/or workers 	1	2/3*	L/M*	<ul style="list-style-type: none"> • Type of foundations (bored piles, driven piles, foundation shafts, etc.) • Beams construction (cantilever, temporary supports, pre-cast beams launching, etc.) • TP exposure related to the location (over passing existing infrastructures) • Geotechnical conditions 	<ul style="list-style-type: none"> • Surface monitoring • Identification and monitoring of u/g services • Compliance with standard code of practice iro open traffic conditions • Compliance with limitations iro weather conditions for beams launching (e.g. max wind speed) 	<ul style="list-style-type: none"> • Sublimit VRWS and set proper deds • Sublimit Underground cables and set proper deds • Compliance with standard code of practice iro open traffic conditions (signals and preventive measures) • Sublimit accidental pollution (slurry)
				2	2	L			
				2/3*	2/3*	M/H*			
				2	2	M			
				2	3	M			
* The higher exposure rate refers to refurbishment works on existing structures and new structures adjacent to existing ones or over passing roads, railways, etc.									

Type of Works	Hazards	Causes	Impacts	Exposure Ranking			Risk Assessment	Control Measures	Insurance Topics
				F	S	R			
Roads/Railways <i>(incl. enlargement projects)</i>	<ul style="list-style-type: none"> Vibration Removal or weakening of supports Underground cables and pipes Bodily injuries Pollution (crop and land use) Construction equipment circulation inside construction site (even crossing roads or other infrastructures) <p>Note: See other type of works for specific items e.g. tunnels or bridges</p>	<ul style="list-style-type: none"> Soil treatment and rolled compacted embankments Cuttings excavation Noise absorbent barriers installation Retaining walls Signals and tolls equipment refurbishment Construction equipment circulation (dust and accident/collision in case of open traffic) 	<ul style="list-style-type: none"> Damages to TP properties following structures collapse Total or partial collapse of TP structures and buried services resulting in structural damages Damages to TP vehicles (enlargement works) Cracks Injury or death to TP and/or workers 	1	2	L	<ul style="list-style-type: none"> Retaining walls (piles walls, driven sheet piles, reinforced earth, etc.) Embankments and cuttings (excavation method, soil compacting) TP exposure related to the location (distance form existing structures) Buried services and overhead lines (mapping and safety measures) 	<ul style="list-style-type: none"> Groundwater level monitoring in case of deep excavation Soil settlement monitoring following compacting works Identification and monitoring of u/g services and overhead lines Compliance with standard code of practice iro open traffic conditions Strict rules for equipment operations 	<ul style="list-style-type: none"> Sublimit VRWS and set proper deds Sublimit Underground cables and set proper deds Compliance with standard code of practice in respect of open traffic conditions (signals and preventive measures) Sublimit accidental pollution (dust)
				2/3	2	L/M*			
				2	2/3*	M			
				1/2*	2	L/M*			
				1	3	M			
* The higher exposure rate refers to refurbishment and/or extension works on existing infrastructures in urban/densely populated areas									
Airports <i>(landing strips and infrastructures excl. air terminals – ref. to large span buildings)</i>	<ul style="list-style-type: none"> Vibration Removal or weakening of supports Underground cables and pipes Bodily injuries Construction equipment circulation inside construction site (even crossing roads or other infrastructures) 	<ul style="list-style-type: none"> Soil treatment and compacting works Retaining walls Construction equipment circulation (dust and accident/collision in case of airports in operations) 	<ul style="list-style-type: none"> Total or partial collapse of TP structures and buried services resulting in structural damages Damages to TP vehicles/aircrafts (enlargement works) Injury or death to TP and/or workers 	1	2	L	<ul style="list-style-type: none"> TP exposure related to the location (distance form existing structures) Buried services and overhead lines (mapping and safety measures) Soil compacting methodology 	<ul style="list-style-type: none"> Soil settlement monitoring following compacting works Identification and monitoring of u/g services Strict rules for equipment operations and radio contact with the control tower 	<ul style="list-style-type: none"> Sublimit VRWS and set proper deds Sublimit Underground cables and set proper deds Compliance with standard code of practice for equipment operations in working airports Sublimit accidental pollution (dust)
				1/2*	3/4*	M/H*			
				1/2*	3/4*	M/H*			
* The higher exposure rate refers to refurbishment and/or extension works on existing airports									

Type of Works	Hazards	Causes	Impacts	Exposure Ranking			Risk Assessment	Control Measures	Insurance Topics		
				F	S	R					
Dams and HPP <i>(excl. tunneling works for diversion tunnels and/or penstocks)</i>	<ul style="list-style-type: none"> Vibration Removal or weakening of supports/landslides Underground cables and pipes Bodily injuries Construction equipment circulation inside construction site (even crossing roads or other infrastructures) Debris sedimentation 	<ul style="list-style-type: none"> Soil treatment and compacting works Piling works and injections to consolidate abutments Drainage and waterproofing injections with chemical substances Construction equipment circulation (dust and accident/collision) Impervious areas Release of waste debris in water courses 	<ul style="list-style-type: none"> Damages to TP properties following structures collapse (water wave) Total or partial collapse of TP structures and buried services resulting in structural damages Damages to TP vehicles Accidental pollution Injury or death to TP and/or workers 	1	4	M	<ul style="list-style-type: none"> TP exposure related to the location (distance from existing structures and villages) Buried services and overhead lines (mapping and safety measures) Waste water treatment plant (slurry from tunneling and/or piling works) Existing HPP upstream (flood waves control) and downstream 	<ul style="list-style-type: none"> Soil settlement and slopes monitoring Identification and monitoring of u/g services and overhead lines Pumping stations and settling basins with proper filters Strict rules for equipment operations Flood waves monitoring network and contingency plan 	<ul style="list-style-type: none"> Sublimit Underground cables and set proper deds Sublimit accidental pollution Sublimit Removal or weakening of supports Compliance with contingency plan and safety measures in case of flood (CPE/M and construction material removed from the river bed or flood area) 		
				1/3*	2/3*	L/H*				2	2
* The higher exposure rate refers to refurbishment and/or extension works on existing dams/HPP which could enable debris to be sucked into existing conduits/turbines											
Large Span Structures <i>(incl. industrial plants, sport arena, hangar, transport terminal, etc.)</i>	<ul style="list-style-type: none"> Fire Collapse Vibration Removal or weakening of supports Underground cables and pipes Bodily injuries 	<ul style="list-style-type: none"> Flammable construction material storage Removal or weakening of supports due to foundations pit excavation Deep foundations works High rise scaffolding Construction site adjacent to existing structure maintained into service Falling cranes 	<ul style="list-style-type: none"> Fire damages to TP following construction material fire Total or partial collapse of TP structures and buried services resulting in structural damages Cracks Injury or death to TP and/or workers 	2	2/3*	L/M*	<ul style="list-style-type: none"> Type of foundations (piles, shaft, etc) TP exposure related to the location (Urban areas, country side, etc.) Distance from existing property Geotechnical conditions Emergency plans and Fire fighting facilities 	<ul style="list-style-type: none"> Surface monitoring Identification and monitoring of u/g services Ground water level monitoring Construction site housekeeping Storage units limitations Compliance with Emergency plans and Fire code of practice 	<ul style="list-style-type: none"> Dilapidation report Sublimit VRWS and set proper deds Sublimit Underground cables and set proper deds Incl. Fire fighting facilities clause Incl. Camps and stores clause with proper sublimit Sublimit TP business interruption Clear signals, fences and preventive measures 		
				2	2/3*	L/M*				3/4*	2
* The higher exposure rate refers to refurbishment and/or extension works on existing infrastructures (maintained into service during works)											