ENVIRONMENTAL IMPACT ASSESSMENT MATRIX OF THE CONSTRUCTION OF NEW BUILDINGS

ASSETS	Action	Environmental Component Exposed	Environmental aspect	Environmental impact	Impact Type	Extension	Intensity	Duration	Probability	Legal aspects	Unmitigated significance	original risk	Mitigation measures	Extension	Intensity	Duration	Probability	Legal aspects	significance with mitigation	mitigated risk	impact degree
Maintenance and repairs: Arrival of cargo and personnel	Arrival of people and cargo at the Base	Flora and fauna	Transport of Non-Native Species	Invasion of Species	Indirect	2	3	2	3	4	144	Medium	M1: The measures established in the Manual for the Prevention of Non-Native Species must be applied.	2	3	2	2	2	48	Low	Less than minimal or transient
	Elimination of packaging of transported cargo	Soil	Waste generation	environment pollution	Straight	2	2	2	3	2	48	Low	M2: the provisions of the Waste Management Plan and the Instructions for waste preparation of the bases must be completed.	1	2	2	3	2	24	Low	Less than minimal or transient
	Vehicle operation and movement of people	Soil	Interaction of personnel and vehicles with the substrate	Substrate disturbance	Straight	2	3	3	4	4	288	High	M3: (a) The activity will be carried out on the area already impacted by the base, (b) circulation through areas with vegetation must be avoided, (c) respect what is established as measures of approach to fauna, (d) respect maximum values of speed and (e) not cross the streams.	2	2	3	3	2	72	Low	Less than minimal or transient
	Anchorage of the ship for unloading tasks	Water	Vessel activities near the coast	Alteration of the coastal fauna	Straight	2	2	2	4	4	128	Medium	M5: to minimize the impact of the vessels, (a) the provisions of Annex IV and the Polar Code regarding discharges will be complied with, (b) the operation time will be reduced to the shortest possible, (c) the discharge will be carried out mainly to a summer campaign and (d) a main site and an alternative site for downloading will be established.	2	2	2	3	2	48	Low	Less than minimal or transient
	Use of boats or amphibians to unload materials and personnel	Fauna	Noise and vibration generation	harmful meddling	Straight	2	2	2	3	2	48	Low	M6: (a) Regular maintenance of all equipment to ensure its efficient operation, (b) the provisions of the wildlife approach manual will be respected, (c) vehicles will be used in a way that minimizes noise and (d) will control not to do activities that involve high levels of noise when there are nearby concentrations of fauna.	2	2	2	2	2	32	Low	Less than minimal or transient
Land preparation: Rock removal, crack sealing and ground drilling	land smoothing	Soil	rock extraction	Substrate disturbance	Straight	1	4	3	4	2	96	Low	M13: Despite the fact that the activity is going to be carried out in an already impacted area of the base, mitigation measures should include: (a) Affect the minimum of the necessary surface, (b) that the extraction is preferably carried out manually, avoiding the use of jackhammers and (c) if the rocks have vegetation, they must be relocated in a sector of the base that we were not allowed to use. impacted by the project.	1	3	3	4	2	72	Low	Less than minimal or transient
		Soil			Straight	1	4	3	4	2	96	Low	M14: One must (a) remove the essential minimum quantity of rocks, (b) ensure that the hole is filled after extraction to avoid accumulation of water or snow and (c) ensure that the total extraction of rocks does not modify the record of any water course in summer (chorrillo).	1	3	3	4	2	72	Low	Less than minimal or transient
		Environment	dust dispersion	Atmospheric pollution	Straight	3	2	2	3	2	72	Low	M9: complete the provisions of the directive for work abroad of the Argentine Antarctic Program	2	1	2	2	2	16	Low	Less than minimal or transient
		Vegetation	taking of species	Reduction of vegetation cover	Straight	1	4	3	4	4	192	Medium	M13: Despite the fact that the activity is going to be carried out in an already impacted area of the base, mitigation measures should include: (a) Affect the minimum of the necessary surface, (b) that the extraction is preferably carried out manually, avoiding the use of jackhammers and (c) if the rocks have vegetation, they must be relocated in a sector of the base that we were not allowed to use. impacted by the project.	1	4	2	4	2	64	Low	Less than minimal or transient
	Crack sealing	Soil	Use of epoxy resin	soil contamination	Straight	1	4	3	4	2	96	Low	M15: Must be: (a) Avoid the dispersion of the material by carrying out the preparation within the nearest facilities, (b) avoid the excessive use of the material, (c) take into account the safety data sheet of the product and (d) ensure the correct classification of the surplus material as waste.	1	3	3	4	2	72	Low	Less than minimal or transient
	Preparation of the anchorage area	Soil	Substrate perforation	Substrate disturbance	Straight	1	4	4	4	2	128	Medium	M16: (a) Carry out the minimum amount of drilling necessary, (b) drill in the already impacted sites of the base, (c) do not carry out drilling in surface watercourses, (d) the exposed permafrost must be covered in the shortest possible time, (e) drilling will not be allowed outside of the area and (f) the generation of meltwater in the drilling area will be avoided by removing accumulated snow in the area.	1	3	4	4	2	96	Low	Less than minimal or transient
		Soil	dust dispersion	Atmospheric pollution	Straight	3	2	2	3	2	72	Low	M9: complete the provisions of the directive for work abroad of the Argentine Antarctic Program	2	1	2	2	2	16	Low	Less than minimal or transient
		Fauna	Noise and vibration generation	harmful meddling	Straight	2	2	2	3	2	48	Low	M6: (a) Regular maintenance of all equipment to ensure its efficient operation, (b) the provisions of the wildlife approach manual will be respected, (c) vehicles will be used in a way that minimizes noise and (d) will control not to do activities that involve high levels of noise when there are nearby concentrations of fauna.	2	2	2	2	2	32	Low	Less than minimal or transient

		Vegetation	movement of personnel	Substrate disturbance	Straight	1	3	3	4	2	72	Low	M18: (a) Avoid trampling on rocks colonized by lichens and mosses, (b) establish alternative circulation paths to avoid stepping on vegetation, and (c) select work sites without vegetation beforehand.	1	2	3	4	2	48	Low	Less than minimal or transient
		Soil	Waste generation	environment pollution	Straight	2	2	2	3	4	96	Low	M2: the provisions of the Waste Management Plan and the Instructions for waste preparation of the bases must be completed.	1	2	2	2	2	16	Low	Less than minimal or transient
Foundation I: assembly of chemical anchor and introduction of steel rods	Sealant Placement	Soil	Use of epoxy resin	soil contamination	Straight	1	4	3	4	2	96	Low	M15: Must be: (a) Avoid the dispersion of the material by carrying out the preparation within the nearest facilities, (b) avoid the excessive use of the material, (c) take into account the safety data sheet of the product and (d) ensure the correct classification of the surplus material as waste.	1	3	3	4	2	72	Low	Less than minimal or transient
	Placement of steel rods	Soil	Introduction of anthropic elements	Alteration of the original relief	Straight	1	4	4	4	2	128	Medium	M17: Carry out this activity in the selected area since it is impacted by the existence of the old facilities of the base, therefore new slaughter areas are not generated.	1	3	4	4	2	96	Low	Less than minimal or transient
	chemical anchor	Soil	Use of chemical anchor	soil contamination	Straight	1	4	3	4	2	96	Low	M15: Must be: (a) Avoid the dispersion of the material by carrying out the preparation within the nearest facilities, (b) avoid the excessive use of the material, (c) take into account the safety data sheet of the product and (d) ensure the correct classification of the surplus material as waste.	1	3	3	4	2	72	Low	Less than minimal or transient
		Soil	Waste generation	environment pollution	Straight	2	2	2	3	2	48	Low	M2: the provisions of the Waste Management Plan and the Instructions for waste preparation of the bases must be completed.	1	2	2	3	2	24	Low	Less than minimal or transient
Foundation II: mounting with shoes	shoe reinforcement	Soil	Introduction of anthropic elements	Alteration of the original relief	Straight	1	4	4	4	2	128	Medium	M17: Carry out this activity in the selected area since it is impacted by the existence of the old facilities of the base, therefore new slaughter areas are not generated.	1	3	4	4	2	96	Low	Less than minimal or transient
		Soil	Waste generation	environment pollution	Straight	2	2	2	3	2	48	Low	M2: the provisions of the Waste Management Plan and the Instructions for waste preparation of the bases must be completed.	1	2	2	3	2	24	Low	Less than minimal or transient
Cable laying I: aerial cabling	aerial laying	Air	Introduction of anthropic elements	landscape modification	Straight	1	4	4	4	2	128	Medium	M17: Carry out this activity in the selected area since it is impacted by the existence of the old facilities of the base, therefore new slaughter areas are not generated.	1	3	4	4	2	96	Low	Less than minimal or transient
		Fauna	Noise and vibration generation	harmful meddling	Straight	2	2	2	3	2	48	Low	M6: (a) Regular maintenance of all equipment to ensure its efficient operation, (b) the provisions of the wildlife approach manual will be respected, (c) vehicles will be used in a way that minimizes noise and (d) will control not to do activities that involve high levels of noise when there are nearby concentrations of fauna.	2	2	2	2	2	32	Low	Less than minimal or transient
		Soil	Waste generation	environment pollution	Straight	2	2	2	3	2	48	Low	M2: the provisions of the Waste Management Plan and the Instructions for waste preparation of the bases must be completed.	1	2	2	3	2	24	Low	Less than minimal or transient
		Air	GEI emission	Atmospheric pollution	Straight	3	4	2	3	2	144	Medium	M4: Supervise the state of vehicles and machinery to avoid incomplete combustion and thus minimize CO2 emissions into the atmosphere.	3	4	1	2	2	48	Low	Less than minimal or transient
		Vegetation	movement of personnel	Substrate disturbance	Straight	1	3	3	4	2	72	Low	M18: (a) Avoid trampling on rocks colonized by lichens and mosses, (b) establish alternative circulation paths to avoid stepping on vegetation, and (c) select work sites without vegetation beforehand.	1	2	3	4	2	48	Low	Less than minimal or transient
		Fauna	Noise and vibration generation	harmful meddling	Straight	2	2	2	3	2	48	Low	M6: (a) Regular maintenance of all equipment to ensure its efficient operation, (b) the provisions of the wildlife approach manual will be respected, (c) vehicles will be used in a way that minimizes noise and (d) will control not to do activities that involve high levels of noise when there are nearby concentrations of fauna.	2	2	2	2	2	32	Low	Less than minimal or transient
Cable laying II: trench cabling	lying in trench	Soil	Introduction of anthropic elements	Alteration of the original relief	Straight	1	4	4	4	2	128	Medium	M17: Carry out this activity in the selected area since it is impacted by the existence of the old facilities of the base, therefore new slaughter areas are not generated.	1	3	4	4	2	96	Low	Less than minimal or transient
		Soil		Drain Modification	Straight	1	4	4	4	2	128	Medium	M19: (a) avoid the formation of snow tails and foot ice, (b) affect the minimum necessary surface area, (c) not incorporate anthropic elements into surface water courses and (d) control that the accumulation of Water.	1	3	4	4	2	96	Low	Less than minimal or transient
		Soil	Waste generation	environment pollution	Straight	2	2	2	3	2	48	Low	M2: the provisions of the Waste Management Plan and the Instructions for waste preparation of the bases must be completed.	1	2	2	3	2	24	Low	Less than minimal or transient
		Air	GEI emission	Atmospheric pollution	Straight	3	4	2	3	2	144	Medium	M4: Supervise the state of vehicles and machinery to avoid incomplete combustion and thus minimize CO2 emissions into the atmosphere.	3	3	2	2	2	72	Low	Less than minimal or transient

		Vegetation	movement of personnel	Substrate disturbance	Straight	1	3	3	4	2	72	Low	M18: (a) Avoid trampling on rocks colonized by lichens and mosses, (b) establish alternative circulation paths to avoid stepping on vegetation, and (c) select work sites without vegetation beforehand.	1	2	3	4	2	48	Low	Less than minimal or transient
		Fauna	Noise and vibration generation	harmful meddling	Straight	2	2	2	3	2	48	Low	M6: (a) Regular maintenance of all equipment to ensure its efficient operation, (b) the provisions of the wildlife approach manual will be respected, (c) vehicles will be used in a way that minimizes noise and (d) will control not to do activities that involve high levels of noise when there are nearby concentrations of fauna.	2	2	2	2	2	32	Low	Less than minimal or transient
Assembly of structures (In this item enter the different buildings and components to be built in the new Base)	Structure reinforcement	Soil	Introduction of anthropic elements	landscape modification	Straight	1	4	4	4	2	128	Medium	M17: Carry out this activity in the selected area since it is impacted by the existence of the old facilities of the base, therefore new slaughter areas are not generated.	1	3	4	4	2	96	Low	Less than minimal or transient
		Vegetation	movement of personnel	Substrate disturbance	Straight	1	3	3	4	2	72	Low	M18: (a) Avoid trampling on rocks colonized by lichens and mosses, (b) establish alternative circulation paths to avoid stepping on vegetation, and (c) select work sites without vegetation beforehand.	1	2	3	4	2	48	Low	Less than minimal or transient
		Soil	Introduction of anthropic elements	Drain Modification	Straight	1	4	4	4	2	128	Medium	M19: (a) avoid the formation of snow tails and foot ice, (b) affect the minimum necessary surface area, (c) not incorporate anthropic elements into surface water courses and (d) control that the accumulation of Water.	1	3	4	4	2	96	Low	Less than minimal or transient
		Soil	Waste generation	environment pollution	Straight	2	2	2	3	2	48	Low	M2: the provisions of the Waste Management Plan and the Instructions for waste preparation of the bases must be completed.	1	2	2	3	2	24	Low	Less than minimal or transient
	Assembly of the structure	Soil	Introduction of anthropic elements	Alteration of the original relief	Straight	1	4	4	4	2	128	Medium	M17: Carry out this activity in the selected area since it is impacted by the existence of the old facilities of the base, therefore new slaughter areas are not generated.	1	3	4	4	2	96	Low	Less than minimal or transient
		Soil		Drain Modification	Straight	1	4	4	4	2	128	Medium	M19: (a) avoid the formation of snow tails and foot ice, (b) affect the minimum necessary surface area, (c) not incorporate anthropic elements into surface water courses and (d) control that the accumulation of Water.	1	3	4	4	2	96	Low	Less than minimal or transient
		Fauna	Noise and vibration generation	harmful meddling	Straight	2	2	2	3	2	48	Low	M6: (a) Regular maintenance of all equipment to ensure its efficient operation, (b) the provisions of the wildlife approach manual will be respected, (c) vehicles will be used in a way that minimizes noise and (d) will control not to do activities that involve high levels of noise when there are nearby concentrations of fauna.	2	2	2	2	2	32	Low	Less than minimal or transient
		Soil	Waste generation	environment pollution	Straight	2	2	2	3	2	48	Low	M2: the provisions of the Waste Management Plan and the Instructions for waste preparation of the bases must be completed.	1	2	2	3	2	24	Low	Less than minimal or transient
		Vegetation	movement of personnel	Substrate disturbance	Straight	1	3	3	4	2	72	Low	M18: (a) Avoid trampling on rocks colonized by lichens and mosses, (b) establish alternative circulation paths to avoid stepping on vegetation, and (c) select work sites without vegetation beforehand.	1	2	3	4	2	48	Low	Less than minimal or transient
		Air	GEI emission	Atmospheric pollution	Straight	3	4	2	3	2	144	Medium	M4: Supervise the state of vehicles and machinery to avoid incomplete combustion and thus minimize CO2 emissions into the atmosphere.	3	3	2	2	2	72	Low	Less than minimal or transient
Commissioning of Systems: Water System	Maintenance work and staff accommodation	Soil	Waste generation	environment pollution	Straight	2	2	2	3	2	48	Low	M2: the provisions of the Waste Management Plan and the Instructions for waste preparation of the bases must be completed.	1	2	2	3	2	24	Low	Less than minimal or transient
	Use, storage and transfer of fuels and other dangerous substances	Soil	Spill of dangerous substances	soil contamination	Straight	2	2	4	3	4	192	Medium	M10: (a) establish and take into account the contingency measures of the future Base Contingency Plan, (b) have the corresponding anti-spill material for the primary contingency of the spill, (c) conduct spill training for all personnel, (d) ensure the provision of anti-spill response equipment and (e) ensure compliance with the maintenance plan for vehicles, facilities and generators.	2	2	4	3	2	96	Low	Less than minimal or transient
	Work in outdoor areas	Environment	Dispersal of anthropic elements	Environmental pollution	Straight	2	3	2	3	4	144	Medium	M8: (a) the provisions of the Waste Management Plan must be completed and (b) compliance with the guideline for repair work abroad of the Argentine Antarctic Program.	2	2	2	3	2	48	Low	Less than minimal or transient
	Use of water sources	Water	Consumption of the water resource	drainage disturbance	Straight	2	2	4	4	2	128	Medium	M11: (a) keep track of the water consumed and (b) establish a sustainable water consumption plan.	2	1	4	4	2	64	Low	Less than minimal or transient
	Use and consumption of water at the Base	Soil	effluent discharge	shoreline pollution	Straight	2	3	4	4	2	192	Medium	M7: (a) Said discharge is carried out, if possible, where there are conditions for its initial dilution and rapid dispersion; (b) Given that it is a station where the average weekly occupation during the southern summer will be greater than 30 people, an effluent treatment plant with three treatment stages will be installed.	2	1	4	4	2	64	Low	Less than minimal or transient
	Vehicle operation and movement of people	Soil	Circulation transporting materials	Substrate disturbance	Straight	2	3	3	3	2	108	Medium	M3: (a) The activity will be carried out on the area already impacted by the base, (b) circulation through areas with vegetation must be avoided, (c) respect what is established as measures of approach to fauna, (d) respect maximum values of speed and (e) not cross the streams.	2	2	3	2	2	48	Low	Less than minimal or transient