Согласовано/ Agreed
Regional manager
_____ M. Mazhenov

«____» _____ 2020

Согласовано/Approved
Transportation manager
_____ A. Bunarev

«____» _____ 2020

Task Order
Maintenance and Routine Repair of Access Roads to Isatai PS and to Kurmangazy PS

SECTION 1 Work venue and completion time

1.1. Work and services provision venue

- Access road to Isatai PS, Republic of Kazakhstan, Atyrau Oblast, Isataysky district, 12 km from settlement Akkistau heading Astrakhan, Russian Federation;
- Access road to Kurmangazy PS, Republic of Kazakhstan, Atyrau Oblast, Kurmangazinsky district, 48 km from settlement Ganyushkino heading Atyrau, Kazakhstan.
- The distance between facilities is 100 km.

1.2. Work and services completion time: - 3 (three) years.

SECTION II. TECHNICAL REQUIREMENTS TO A BIDDER

2.1. 2.1. Availability of materials and technical resources, workers and specialists with the bidder.

Industrial base, equipment, machinery, personnel	Qty, pcs/man-hour
Industrial base located max 100km from facility.	1
The car of the Road Brigade Supervisor to transport workers and tools	1
Grader	1
Combined road machine with mounted equipment, single snow removal blade and solid material distributor	1
Dump truck	1

Roller	1
Loader	1
“Belarus” tractor	1
Rotary hoes or mounted equipment for tractor "Belarus"	1
Manual vibratory plate	1
Grass mower with petrol engine	2
Road Workers	5
Drivers of road machines and specialists (electrician, telecom mechanic, etc.)	4
Road Brigade Supervisor	1

The bidder must have machinery and equipment that would enable it to carry out routine repair and upkeep of the motorways using machinery and equipment at the up-to-date technical level.

The bidder is to be able to mobilize multi-skilled crews (groups) to carry out simple work of small scope, as well as dedicated crews (groups) that would upkeep and carry out repairs of individual elements of construction or individual large scopes of work.

Efficiency of maintaining the motorways largely depends on location of the supply base relative to the work sites.

The availability of machinery and equipment has to be confirmed by the ownership rights registration certificate or by lease agreement. The bidder application should specify information about the material and technical resources required to conduct the works and provide information about resources to be engaged to carry out the work according to examples given in Exhibits 2, 3.

If production facilities and equipment yards are owned or leased, it is required to specify exact address at which the production facilities and equipment yards are located and submit documents confirming ownership or lease agreement.

2.2. The work experience within the tender scope.

The bidder should have experience of work in the tender relevant area of no less than one (1) year. The bid should contain information on the work experience in executing similar contracts using the template provided in Exhibit 1.

SECTION III. ACTIVITIES TO MAINTAIN AND CARRY OUT ROUTINE REPAIRS OF MOTORWAYS.

3.3. Key indicators of transport and operational performance and parameters of access road to Isatai PS:

3.3.1. A low traffic road designed to provide for the Company vehicles movement to the nearest public roads;
3.3.2. Road category - IV;
3.3.3. The type of the road mat - light type (concrete asphalt)
3.3.4. The length of the motorway - 8.516 km;
3.3.5. Number of lanes - 2;

3.3.6. Traffic lane width - 3m;
3.3.7. Area of driveway cover - 59 616 m^2;
3.3.8. Roadside width - 2.0 m.
3.3.9. The width of roadside reinforced with concrete asphalt - 0.5m;
3.3.10. The width of roadside reinforced with crushed stone - 1.5m;
3.3.11. Number of warning posts - 161 ea;
3.3.12. Metal barrier guards - 60m;
3.3.13. Number of road signs - 45 ea;

The signs group	**"The sign number"/Qty**
Prohibiting signs	(“3.24”/4 ea); (“3.27”/2 ea.); (“3.20”/4 ea.); (“3.21”/4 ea.); (“3.12”/2 ea.)
Priority signs	(“2.3.2”/1 ea.); (“2.4”/2 ea.); (“2.3.3”/1 ea.);
Warning signs	(“1.11.1”/4 ea.); (“1.11.2”/4 ea.); (“1.31.3”/1 ea.);
Informing and indicating signs	(“5.21.1”/4 ea.); (“5.28”/9 ea.); (“5.26”/1 ea.)
Signs giving additional information	(“7.1.1.”/2 ea.)

3.3.14. The number of reinforced concrete pipes - 7 ea;
3.3.15. The diameter of reinforced concrete pipes - 1.0/1.5m

3.4. Key indicators of transport and operational performance and parameters of access road to Kurmangazy PS:

3.4.1. A low traffic road designed to provide for the Company vehicles movement to the nearest public roads;
3.4.2. Road category - IV;
3.4.3. The type of the road mat - light type (concrete asphalt)
3.4.4. The length of the motorway - 2.956 km;
3.4.5. Number of lanes - 2;
3.4.6. Traffic lane width - 3m;
3.4.7. Area of driveway cover - 20 692 m^2;
3.4.8. Roadside width - 2.0 m.
3.4.9. The width of roadside reinforced with concrete asphalt - 0.5m;
3.4.10. The width of roadside reinforced with crushed stone - 1.5m;

3.4.11. Number of warning posts - 81 ea;
3.4.12. Number of road signs - 28 ea;

The signs group	**"The sign number"/Qty**
Prohibiting signs	(“3.24”/2 ea.); (“3.27”/2 ea.); (“3.13”/6 ea.)
Priority signs	(“2.3.2”/1 ea.); (“2.4”/1 ea.); (“2.3.3”/1 ea.);
Warning signs	(“1.11.1”/2 ea.); (“1.11.2”/2 ea.); (“1.31.3”/3 ea.);
Informing and indicating signs	(“5.21.1”/4 ea.); (“5.28”/3 ea.); (“5.26”/1 ea.)
Signs giving additional information	(“7.1.1.”/2 ea.)

3.4.13. Railway crossing - 1 ea.;

3.4.14. Horizontal road markings - 15 m^2 (approaching railway crossing);

3.5. Bill of scope and frequency of operations to maintain and make routine repairs of access road to Isatai PS

Number of element group, number of element and work number	***The name of the element group. The name of work Activity***	***UOM***	***The scope of work for 1 cycle***	***Frequency (number of exposures a year) for access road***	***The actual scope of work for access road per year, (4*5)***
1	***2***	***3***	***4***	***5***	***6***
1.	***The right of way, roadbed, drainage system and roadsides:***				
1.1.	Removing various items, debris and oversize loads manually: from roadsides, road slopes and the right of way	1 km completion	17.032	12	204.384
1.2.	Loads transportation with dump trucks carrying 10 tons	1 t of load	3	12	36
1.3.	Waste disposal	1 t of load	3	12	36
1.4.	Mowing grass on roadsides manually	100 m2	340.64	4	1362.56
1.5.	Leveling of the fill slopes with a motor grader	1,000 cub.m of soil	51.096	1	51.096

1.6.	Manual grading of sites, soil group 2	1,000 cub.m of soil	0.1	4	0.4
1.7.	Filling washouts and pits on the slopes and berms with soil including compaction by hand	10 m^3	0.5	4	2
1.8.	Elimination of spontaneous ramps off the road (road accesses)	1 ramp	1	1	1
1.9.	Leveling of the ground shoulders with a motor grader	1 km passage	17.032	1	17.032
1.10.	Repair roadsides with crushed stone reinforcement, bedding width is 10cm	100 m^2	255.48	1% of the area	2.55
1.11.	Excavate soil with loading onto dump trucks using excavators with the bucket volume of 0.65 (0.5-1) cub.m, soil group 2	1000 m3 of soil	0.005	4	0.02
1.12.	Move material by 10 t dump truck outside a quarry	1 t of load	4.5	4	18
1.13.	Water the compacted road fill soil	1000 m3 of compacted soil	0.005	4	0.02
1.14.	Compacting of soil with air rammers, Group 1-2 soil	100 m^3 of compacted soil	0.05	4	0.2
2.	***Driveways (road dressing)***				
2.1.	Patch work of asphalt topping with bitumen-concrete mixture, breaking of the old topping with jack hammers and compaction by rolling. Layer width up to 50 mm, square area of one repair up to 1 m^2.	100 m^2	596.16	*0.08% of the area*	0.48
2.2.	Patch work of asphalt topping with bitumen-concrete mixture, breaking of the old topping with jack hammers and compaction by rolling. Layer width up to 70 mm, square area of one repair up to 3 m^2.	100 m^2	596.16	*0.06% of the area*	0.36
2.3.	Patch work of asphalt topping with bitumen-concrete mixture, breaking of the old topping with jack hammers and compaction by rolling. Layer width up to 70 mm, square area of one repair more than 3 m^2.	100 m^2	596.16	*0.06% of the area*	0.36
2.4.	Pothole repair of concrete-asphalt coating using concrete-asphalt mixture to be applied by a machine on the basis of multi-functional road-building vehicles, rotary hoes and compactors, the thickness of the layer being up to 50 mm, square area of one repair	100 m^2	596.16	*0.06% of the area*	0.36

	up to 3 m^2.				
2.5.	Pothole repair of concrete-asphalt coating using concrete-asphalt mixture to be applied by a machine on the basis of multi-functional road-building vehicles, rotary hoes and compactor, the thickness of the layer being up to 50 mm, square area of one repair more than 3 m^2.	100 m^2	596.16	*0.06% of the area*	0.36
2.6.	Clean roads using 210 – 270 hp multipurpose road maintenance vehicles without watering	10,000 m^2	5.9616	3	17.8848
2.7.	Manual spreading and throwing small stone or grit stone (restoring traction properties of road coating in bitumen bleeding areas)	100 m^2	0.01	1	0.01
2.8.	Cracks repairs in asphalt and concrete cover using bituminous mastic	100 m of cracks	Coverage area 596.2	*16m of cracks on 1000 sq.m surface:*	*10*
2.9.	Cutting the top asphalt road layer using cold -milling technique with a mill drum width of 1000mm, layer thickness of 5	100 m^2	6.00	1	6.00
2.10.	Pouring cohesive material	1 tonnes	0.15	1	0.15
2.11.	Arrangement of surface 4 cm thick from dense, hot, fine grained, asphalt-concrete mixtures of ABV type, density of stone materials being 2.5-2.9 t/m^3	1000 $м^2$ of cover	0.6	1	0.6
2.12.	For each 0.5cm of cover to add to or remove from the rate	1000 $м^2$ of cover	0.6	1	0.6
2.13.	Route patrolling	vehicle/hour	8	12	96
3	***Water pipes:***				
3.1.	Removing snow and ice from pipes	10 m of holes	11.77	1	17.38
3.2.	Clearing of the culverts holes of dirt and depositions	10 m of holes	11.77	1	17.38
3.3.	Cleaning the culverts entry canals and draining canals, earth fill slopes over culverts	m^2	147	1	147
3.4.	Refurbishment of culverts canals reinforcement	m^2	100	Up to 10% of the area	10 m^2
3.5.	Sealing the seams, joints, cracks, scours, chips on the culverts sections and their head walls	m^2	1	1	1
4	***Stationary tools to arrange and regulate road traffic:***				
4.1.	Cleaning and washing road signs and marks	ea.	45	1	45
4.2.	Cleaning signal posts and bollards and washing them using a hose	100 ea.	1.61	2	3.22

4.3.	Painting of the road sign posts	100 ea.	0.10	1	0.10
4.4.	Replacement of road sign posts, net of the road signs cost, with foundations)	100 ea.	0.40	8.5% of existing sign posts	0.03
4.5.	Replace signal posts C-3 ready for installation	100 ea.	1.61	20% of existing sign posts	0.32
4.6.	Pasting of reflective film on the signal posts	100 ea.	1.61	50%	0.80
4.7.	Replacement of road sign boards: on the posts (without the sign cost)	100 ea.	0.45	10%	0.04
4.8.	Solid surface line painting with a marking machine without surface preparation after setting out with a cord: 1.1, 1.2.1, 1.4, width 0.1 m	1 km of marking	2	1	2
4.9.	Cleaning the fence from dust and dirt (including reflective devices)	100 m.	0.6	1	0.6
4.10.	Replacement of certain sections of steel barrier fence on metal poles	100 m	0.6		0.02
4.11.	Straightening of certain sections of steel barrier fence	100 m	0.6		0.01
4.12.	Install reflective elements on the barrier fence	1 reflective element	15	up to 1% of the length	2
4.13.	Stick reflective film on reflective elements of the fencing	100 ea.	15	30%	5
4.14.	Manual removal of alluvial soil from under the fence	100 m.	0.6	1	0.6
5	***Winter maintenance***				
5.1.	Removal of snow from the road using plough equipment mounted on multipurpose road maintenance vehicle of 210 - 270 hp	10,000 m^2	5.962	15	89.4300
5.2.	Distribute gritting salt or friction materials using a 210-270 hp salt spreader	10,000 m^2	5.962	15	89.4300
5.3.	Deliver ice-melting chemicals to the site by a 210-270 hp salt spreader	10 km of delivery distance	10	15	150
5.4.	Road maintenance crews standby in winter season (road building machine operator and a loader operator)	machine-shift	1	135	135
6.	***Road signs cost***				
6.1.	Warning road signs on galvanized plate with light reflective film, size 900x900x900 mm, type 1.11.1, 1.11.2				1
6.2.	Warning road signs with reflective film on the galvanized plate,				1

	type 1.31.3				
6.3.	Priority road signs on galvanized plate with light reflective film, 900x900x900 mm, type 2.3.1-2.3.7, 2.4				1
6.4.	Prohibiting road signs on galvanized plate with light reflective film, round shape, diameter 700 mm, type 3.24, 3.21, 3.20, 3.27, 3.12				1
6.5.	Information road signs on galvanized plate with light reflective film, size 200x300 mm, type 5.28, two-sided				1
6.6.	Information road signs with reflective film on galvanized plate, type 5.21.1				1
6.7.	Additional information road signs with light reflective film on galvanized plate, size 350x700 mm, type 7.1.1				1

3.6. Bill of scope and frequency of operations to maintain and make routine repairs of access road to Kurmangazy PS

Number of element group, number of element and work number	***The name of the element group. The name of work Activity***	***UOM***	***The scope of work for 1 cycle***	***Frequency (number of exposures a year) for access road***	***The actual scope of work for access road per year, (4*5)***
1	***2***	***3***	***4***	***5***	***6***
1.	***The right of way, roadbed, drainage system and roadsides:***				
1.1.	Removing various items, debris and oversize loads manually: from roadsides, road slopes and the right of way	1 km passage	5.912	12	70.944
1.2.	Loads transportation with 10 t dump trucks	1 t of load	1	12	12
1.3.	Waste disposal	1 t of load	1	12	12
1.4.	Mowing grass on roadsides manually	100 m2	118.24	4	472.96
1.5.	Leveling of the fill slopes with a motor grader	1,000 cub.m of soil	17.736	1	17.736
1.6.	Manual grading of sites, soil group 2	1,000 cub.m of soil	0.05	4	0.2

1.7.	Filling washouts and pits on the slopes and berms with soil including compaction by hand	10 m^3	0.3	4	1.2
1.8.	Elimination of spontaneous ramps off the road (road accesses)	1 ramp	1	1	1
1.9.	Leveling of the ground shoulders with a motor grader	1 km passage	5.912	1	5.912
1.10.	Repair roadsides with crushed stone reinforcement, bedding width is 10cm	100 m^2	88.68	1% of the area	0.89
1.11.	Excavate soil with loading onto dump trucks using excavators with the bucket volume of 0.65 (0.5-1) cub.m, soil group 2	1000 m3 of soil	0.003	4	0.012
1.12.	Move material by 10 t dump truck outside a quarry	1 t of load	2.7	4	10.8
1.13.	Water the compacted road fill soil	1000 m^3 of compacted soil	0.003	4	0.012
1.14.	Compacting of soil with air rammers, Group 1-2 soil	100 m3 of compacted soil	0.03	4	0.12
2.	***Driveways (road dressing)***				
2.1.	Patch work of asphalt topping with bitumen-concrete mixture, breaking of the old topping with jack hammers and compaction by rolling. Layer width up to 50 mm, square area of one repair up to 1 m^2.	100 m2	206.92	*0.08% of the area*	0.16
2.2.	Patch work of asphalt topping with bitumen-concrete mixture, breaking of the old topping with jack hammers and compaction by rolling. Layer width up to 70 mm, square area of one repair up to 3 m2.	100 m^2	206.92	*0.06% of the area*	0.12
2.3.	Patch work of asphalt topping with bitumen-concrete mixture, breaking of the old topping with jack hammers and compaction by rolling. Layer width up to 70 mm, square area of one repair more than 3 m^2.	100 m^2	206.92	*0.06% of the area*	0.12
2.4.	Pothole repair of concrete-asphalt coating using concrete-asphalt mixture to be applied by a machine on the basis of multi-functional road-building vehicles, rotary hoes and compactor, the thickness of the layer being up to 50 mm, square area of one repair up to 3 m2.	100 m^2	206.92	*0.06% of the area*	0.12
2.5.	Pothole repair of concrete-asphalt coating using concrete-asphalt	100 m2	206.92	*0.06% of the area*	0.12

	mixture to be applied by a machine on the basis of multi-functional road-building vehicles, rotary hoes and compactor, the thickness of the layer being up to 50 mm, square area of one repair more than 3 m2.				
2.6.	Clean roads using 210 – 270 hp multipurpose road maintenance vehicles without watering	10,000 m^2	2.0692	3	6.2076
2.7.	Manual spreading and throwing small stone or grit stone (restoring traction properties of road coating in bitumen bleeding areas)	100 m^2	0.01	1	0.01
2.8.	Cracks repairs in asphalt and concrete cover using bituminous mastic	100 m of cracks	Coverage area 206.92	*16m of cracks on 1000 sq.m surface:*	*3.3*
2.9.	Cutting he top asphalt road layer using cold -milling technique with a mill drum width of 1000mm, layer thickness of 5	100 m^2	6.00	1	6.00
2.10.	Pouring cohesive material	1 tonnes	0.15	1	0.15
2.11.	Arrangement of surface 4 cm thick from dense, hot, fine grained, asphalt-concrete mixtures of ABV type, density of stone materials being 2.5-2.9 t/m^3	1000 $м^2$ of cover	0.6	1	0.6
2.12.	For each 0.5cm of cover to add to or remove from the rate	1000 $м^2$ of cover	0.6	1	0.6
2.13.	Route patrolling	vehicle/hour	8	12	96
3	***Stationary tools to arrange and regulate road traffic:***				
3.1.	Cleaning and washing road signs and marks	ea.	28	1	28
3.2.	Cleaning signal posts and bollards and washing them using a hose	100 ea.	0.81	2	1.62
3.3.	Painting of the road sign poles	100 ea.	0.10	1	0.10
3.4.	Replacement of road sign posts, net of the road signs cost, with foundations)	100 ea.	0.24	8.5% of existing sign posts	0.02
3.5.	Replace signal posts C-3 ready for installation	100 ea.	0.81	20% of existing sign posts	0.16
3.6.	Pasting of reflective film on the signal posts	100 ea.	0.81	50%	0.40
3. 7	Replacement of road sign boards: on the posts (without the sign cost)	100 ea.	*0.28*	*10%*	*0.03*
3.8.	Surface line painting with a marking machine without surface preparation after setting out with a cord: 1.1, 1.2.1, 1.4, width 0.1 m	1 km of line painting	0.150	1	0.150

4	***Winter maintenance***				
4.1.	Removal of snow from the road using plough equipment mounted on multipurpose road maintenance vehicle of 210 - 270 hp	10,000 m^2	2.0692	15	31.0380
4.2.	Distribute gritting salt or friction materials using a 210-270 hp salt spreader	10,000 m^2	2.0692	15	31.0380
4.3.	Deliver ice-melting chemicals to the site by a 210-270 hp salt spreader	10 km of delivery distance	10	15	150
4.4.	Road maintenance crews standby in winter season (road building machine operator and loader operator)	machine-shift	1	135	135
5.	***Road signs cost***				
5.1.	Warning road signs on galvanized plate with light reflective film, size 900x900x900 mm, type 1.11.1, 1.11.2				1
5.2.	Warning road signs with reflective film on galvanized plate, type 1.31.3				1
5.3.	Road signs on galvanized plate with light reflective film, 900x900x900 mm, type 2.3.1-2.3.7, 2.4				1
5.4.	Prohibiting road signs on galvanized plate with light reflective film, round shape, diameter 700 mm, type 3.24, 3.21, 3.20, 3.27, 3.12				1
5.5.	Information road signs on galvanized plate with light reflective film, size 200x300 mm, type 5.28, two-sided				1
5.6.	Information road signs with reflective film on the galvanized plate, type 5.21.1				1
5.7.	Additional information road signs with light reflective film on galvanized plate, size 350x700 mm, type 7.1.1				1

*Local cost estimates, aggregate annual cost estimate and costs summary by years have to be made up using the template provided in Exhibit 12 of the ITT so that estimated cost of individual works and of work package on the elements and groups of elements could be calculated.

*Local cost estimates include direct costs, overheads, estimated profit and VAT. Direct costs include salaries paid to the employees of the base business, expenditures for machines and equipment operation, cost of materials used to upkeep the motor roads;

* Local costs include regulatory standards and resources code, the description of works and costs, measurement unit, the amount per measurement unit, the quantity as per design data, estimated cost per measurement unit, total estimated cost.

* The list and the scope of work sufficient to maintain proper technical condition of the motor road shall be determined by Contractor together with the Client monthly by signing work order for the respective month.

2.

3.7. Winter road maintenance requirements.

Terms and Definitions

Maintaining roads during winter months implies a set of activities to ensure the safe and smooth transport traffic using the roads during winter months including protection of roads from snow drifts, snow cleaning operations, preventing formation and elimination of the winter slippery and bare ice.

Slippery surface during winter months is caused by snow accumulation and ice generation on the surface of the road resulting in reduced wheel traction with the surface of the coating.

Loose snow is a smooth layer of snow having the same thickness compiled on the road topping. Density ranges from 0.06 to 0.20 g/cm^3. The traction factor in tire-road coating contact gets reduced to 0.2.

Packed snow is a layer of snow compacted by wheels of passing vehicles. Density ranges from 0.3 to 0.6 g/cm^3. Traction factor on packed snow surface ranges from 0.1 to 0.25.

Glassy ice complies on the surface in the form of a smooth transparent film having thickness from 1 mm to 3 mm and occasionally in the form of a matte white textured crust having thickness up to 10 mm or higher. Density of smooth transparent film is from 0.7 to 0.9 g/cm^3. Traction factor ranges from 0.08 to 0.15. Density of ice in the form of a matte-white crust is from 0.5 to 0.7 g/cm^3.

The normative period is the time set for Contractor to clean roads from snow and/or eliminate the winter slippery conditions after a snowfall, blizzard or compiling (detecting) of bare ice conditions on the surface.

Snow drifting extent is road susceptibility to snow drift formation.

Ice response materials - solid (particulate) or liquid road maintenance materials (operating on friction or chemical principle) or their mixtures to be applied to cope with winter slippery conditions.

3.8. Winter maintenance

Contractor should carry out a complex of preventive works not to allow the road to get slippery, or snow and ice to pile up (soft snow, packed up snow, glassy ice), as well as do a complex of works to improve adhesion properties of the road cover, to ensure uninterrupted and safe traffic in winter conditions, reliable and efficient operation of the access road, proper upkeep as per the standards during winter season.

The works to prevent slippery winter cover must ensure that the road operation qualities comply with GOST P 50597-2017.

On the road parts where snowdrift emerge or a large snow buildup caused by heavy snowfall the work to eliminate slippery cover on the road have to be carried out after snow had been removed.

Contractor has to take care to stock salt and sand mixture beforehand.

Contractor should invite the Client to see the salt and sand mixture stocked.

Contractor has to fight winter slippery conditions on the road starting with ascends and descend having sharp incline, at small radius turns, at the road sections with poor visibility and at all other road sections where emergency brake application may be required.

Before starting to provide the services the Contractor shall inform the Client about machinery and equipment availability for winter road maintenance work, about availability of sheltered sites to stock salt and sand mixture and specify the places where the sites are located.

Before applying anti -icing materials Contractor must provide a report issued by a certified road maintenance laboratory about compliance (quality of

anti-icing materials used).

3.9. Requirements to barrier guards

Replaced metal barrier guard (hereinafter referred to as MBG) must meet the requirements to the strength level, sagging, working width and the minimum height as specified in ST RK 1412-2010 and ST RK 1278-2004 "The System of restricting traffic means. Metal guarding barriers. Specifications".

The level of retaining ability depending on the category of the road must meet requirements set forth in ST RK 1412-2010.

The process of installing galvanized metal barrier fencing includes the following types of jobs:

- install and remove signal inserts and road signs;
- disassemble the existing barrier guard;
- install metal poles to be driven into the road base with pneumatic driller hammer machine or concrete jobs;
- install consoles;
- install beam sections;
- straighten the fence;
- install retro-reflectors;

All road guards must be equipped with light reflective elements compliant with GOST R 50971-2011 "Technical means to set up traffic. Road light reflectors. General technical requirements. Application rules"[1)].

The warranty period for the work on replacing barrier fence is no less than 5 years from the date of entry made into the Work Logbook.

3.10. **Reflective road markers replacement.**

Vertical marking has to be made on the marker body to make the markers visible both in daytime and in the dark. Vertical marking must be made in the shape of black strip and light reflector facing the direction of the approaching vehicles. Light reflector must be of rectangular or round shape and be fixed to the marker body on two opposite sides.

Light reflector has to be made of light reflecting film not lower than type B and must comply with ST RK 1125-2002 "Road Signs". General technical conditions".

Reflective road markers height above the road must be at least 0.75m. Reflective road markers have to be installed along the road sides at the distance of 0.35m from the roadbed edge and at the distance of at least 1.0 m from the traffic way to the marker.

The warranty period for the work on replacing signal posts will be no less than 3 years from the date of entry made into the Work Logbook.

3.11. Road signs conformity

Road signs replacement is to be performed according to Regulations for organization of road traffic.

he signs installed on the roads must meet the requirements set forth in ST RK 1125-2002 "Road signs. General technical conditions" and during operations should comply with requirements set forth in GOST R 50597, made using highly intensive reflective film of type 3B, with a double beading.

Distance between the road sign's bottom end to the road mat top (the height of the installed sign) must be:

- 2.5 m - when installed on the roadside outside city\town\locality;

All the components of road signs have to be manufactured from anti-corrosion materials or must have protective coating.

Road signs are fixed to clips.

The signs are to be installed on galvanized metal posts d=76 мм, with a set-off piled up.

The custom-made signs boards are made using a high-reflective film of B type, with size as per GOST.

Clamps to mount signs to pole, support or bracket must be made of galvanized steel sheet at least 2 mm thick. Bonding tape for mounting signs on supporting pole or bracket must be made only of stainless steel.

All fixation components and standard fixation items (bolts, nuts, bushings) must ensure fixation reliability and be able to withstand wind of up to 25 m\sec.

Replaced road sign posts and brackets must have hot galvanized coating.

Contractor in charge of road signs replacement must provide the Client with the certificate of conformity for the highly intensive film it is going to use, as well as written confirmation of the manufacturer (supplier) of this reflective film for the film's warranty period at least 7 years. The letter must have a formal technical bulletin of the film manufacturer attached to it where warranty commitments, including film replacement within the film warranty period in the amount required to repair defective signs must be strictly specified and, if required, an independent NDT to be carried out to test the reflective film and road signs quality.

The warranty for service life of road signs having light reflective surface made of highly intensive film type 3B must comply with requirements set forth in ST RK 1125-2002 "Road signs. General specifications" and be no less than 7 years from the date the entry into the Logbook is made on production of work; provided that: all design components of the sign must be in good condition; the sign should not fail because of the loss of durability, stability, due to design failures, substandard manufacturing, wear, corrosion or other defects in structural components.

All elements of road signs face must be made using the film from one and the same vendor (manufacturer).

The image on the sign has to be legible in any time of the day and night; Information on the sign should not be distorted by the film coming off, by discoloring, peeling or cracking of the image components.

3.12. Requirements for applying horizontal road marking and the materials used.

The horizontal road markings are applied in order to improve traffic safety, to increase traffic velocity and the road throughout as well as to set up specific regimes and sequence of moving vehicles and pedestrians, to facilitate visual awareness of drivers in harmony with other technical means of setting up road traffic.

All markings have to be made using reflective materials. The type of the marking material be agreed the Client.

SECTION IV. OTHER WORK SCOPE.

Contractor shall be involved in the inspection of MVA to identify the causes of the accident and road conditions as of the time the accident occurred.

Following the inspection and after investigating the road condition at the traffic accident spot Contractor shall take part in drafting the traffic accident report together with the RF Ministry of Interior road police force officers.as per the Regulations on keeping records and analysis of traffic accidents occurred on the motorways in the Russian Federation

The work that had not been included in the Technical Plan of Work, nor requested by the order (instruction) and not agreed with the Client will not be

subject to acceptance or payment.

SECTION V. WARRANTY.

The warranty period for the work to eliminate subsidence, potholes repairs, correction of the cover edges, to repair rutting, road cover heaving (repairs of deformation and damage) on asphalt -concrete cover roads is 1 year.

Defects liability period for the works to replace road signs must be not less than 7 years.

Warranty period to replace reflective road markers - 3 years.

Warranty period for horizontal marking for paint (enamel) marking - during the first 3 months of operation.

For the asphalt \ concrete cover (layer of insulation using local patches, repairs of worn out top layers of asphalt\concrete cover on individual spots, refurbishing road mats on the road sections with heaving soil and soft soil) - 2 years.

If defects are found during warranty period Contractor must repair them at its own expense within the time as agreed with the Client. In order to take part in drafting the report where the defects are to be specified, to agree on the way and time to rectify them the Contractor must send its representative within the time specified in the Client notification letter.

The warranty obligations shall be made up in the form of a monthly report on the completed work with pictures and warranty certificate to be attached.

SECTION VI. WORKS QUALITY CONTROL.

The quality of applied materials is controlled by the Contractor in full compliance with requirements of regulating documents through ongoing checks during the entire period of the maintenance and current repair of access roads. When the materials are received, the Contractor is required to carry out the acceptance inspection in established manner and generate as-built documents.

The quality of materials applied is estimated by the Client visually, by registering and measuring (including in a laboratory) at random, occasionally when the Client’s representative travels to the site, to the storage areas of inert materials, to concrete \ asphalt plants during the entire time when the works under the contract are carried out.

In case it is found that the quality of completed works (works in progress) does not meet requirements of regulating and technical documentation the Client shall issue instruction to fix violations of work execution rules.

The non-compliances found have to be corrected by Contractor who shall inform the Client in writing once the non-compliances have been corrected.

Evaluating the quality of the completed work:

- density (the compaction factor) of the road cover after rutting has been eliminated and the concrete asphalt cover repaired using rectangle cutting technique is monitored using (recovering) core samples from the area of 7,000 m2 in amount of 3 cores. Sampling is performed using randomly selected areas at a distance of no less than 0.5 m from the technological joints (adhesion points). The compaction factor for dense concrete asphalt mixes of types A, B should be no less than 0.99

- the layer thickness is controlled using cores (cut outs) recovered to monitor concrete asphalt density, as well as during operations on Contractor’s trimming or laying asphalt into repair boxes;

- The evenness of the coating after pothole repair, after elimination of the rutting and repair of the concrete asphalt coating using rectangle cutting technique, in areas of intersection of repaired coatings with an existing road is controlled using measurements made by a three meter rail system having leveling beam with a taper gauge;

- The Contractor is obliged to engage in the input quality control of the friction (natural sand) and chemical (salt, concentrate, mineral halite and so forth) of materials used for make a sand-salt mixture generating certificates of laboratory tests

- evaluating the quality of developing the driveway (traffic signs, marking, barrier fence) is carried out taking into account the requirements of regulating and technical documents.

Notes:

1) To be applied according to Article 25 of the Law of the Republic of Kazakhstan No 603 "On Technical Regulation" dated November 9, 2004 and the Instruction of the Acting Minister of Industry and New Technologies of the Republic of Kazakhstan No. 491 "On Approval of the Rules of Tracking and Application of International, Regional Standards and Standards of Foreign Countries, Standards of Organizations, Classifiers of Technical and Economic Information, Rules, Norms and Recommendations of Foreign Countries on Standardization, Harmonization and Accreditation at the Territory of the Republic of Kazakhstan, except for their use in Standards of Organizations" dated December 27, 2012

Attachment:

1. Information about experience in performing similar contracts;
2. Information on the material and technical resources necessary for the carry out works;
3. Information on workforce involved.

Drafted by:
engineer on maintenance and repair
of CPC-R roads _____ N.V. Kozlov
(Signature)