Design Requirements

A. Each screen shall be capable of processing a peak as well average and low flow. Inclination of the bar rack shall be 80 degrees. Effective screen area shall have a minimum of 70% free open-area for water flow. Open space between the screening bars shall be selected based on the pump requirement. The Screen shall be design to lift and discharge screenings at an elevation as indicated in the tender drawings.

B. The screen shall be capable of processing the peak flow without exceeding the maximum upstream water level based on a 50% reduction of the screen's free open-area.

C. The travel speed of the rakes shall be between 8 to 12 m/min per minute.

D. The screen shall be designed for a minimum screenings load of 2 m^3/h, based on a screenings volume of 0.01 m3/m of rake width on every rake blade. The number of rakes and distance between the rakes shall be calculated to meet or exceed maximum screenings load.

E. All parts shall be designed and manufactured to handle the forces that may be exerted on the screen during fabrication, shipping, erection, and proper operation according to the O&M manual.

F. All components shall be so designed that jamming at any point will not result in structural failure, but will cause the drive motor to stall. All components, including the gear reducer, shall be designed to withstand, without damage or permanent distortion, the full stalling torque of the drive motor and/or the maximum differential head at any channel water depth.

G. Screen shall be manufactured from AISI 316/316L (EN 1.4401/4404) stainless steel shapes (rods, angles, and channels), pipes, and sheets. In particular, side frames and guides, bar rack, rake assembly, scraper assembly, shafting, discharge chute, fasteners and anchor bolts shall be made of this material.

H. Screen shall be manufactured in a stainless steel only factory to prevent contamination of the stainless steel with rusty dust.

I. All stainless steel components and structures shall be submersed in a chemical bath of nitric acid and hydrofluoric acid (pickling bath) to remove any residues that may be present on the material as a result of forming, manufacture, or handling. After removal from the pickling bath, the equipment must be washed with a high-