

# STAFF-HOUSING PROJECT

The Raubex Staff Village, is a hidden gem embedded in the village of Chamnanga village, Beitbridge. The gated community is under Beitbridge Rural District's jurisdiction and is expected to primarily enclose approximately 54 housing units. As part of the Beitbridge border-post expansion and upgrade program, Bitumen World Team has been subcontracted to do civil works in the gated community under Raubex Construction. The Bitumen World Team has successfully managed to keep up with the work program despite numerous humps and undulations along the way. Currently, our scope of work inside the village is limited to construction of road infrastructure, pedestrian walkways, sewer and stormwater pipelines, service ducts and water reticulation. Included in the scope of work is the main access road which links the Staff Village to the rest of the Beitbridge community and repair of a damaged bridge.

The properties of the roadbed materials, being the very first natural platform on which the road structure is built, determine how much work is required in preparing the foundation. Some of the Staff Village roads lie in areas 'infested' with collapsible soils, and we have had to cut deeper than the anticipated design depth to achieve a competent platform. Initial efforts to process and compact these sections using the initial design saw the insitu material subsiding by up to 100mm on applying the specified compactive effort. On starting the project, the Client had not finalized the preliminary geotechnical investigation tests to determine the soil properties. This shortfall was realised when we compacted the roadbed on the first sections, only to experience unprecedented ground subsidence. The Client responded by giving us a revised design of the affected sections, and the design instructed us to remove a further 150mm of insitu material. Following this change in design, we now have three pavement layers to construct



on the collapsible sections and only two layers for the rest of the non-collapsible sections. Instead of having to stabilise the base pavement layer, the new design requires us to cement-stabilize the subbase layer.

Alterations to the design have proved a great challenge as a lot of decisions have been made based on issued designs only to go back to the decision-making table when the next revision was received. These design 'fluctuations' and delays in the issuance of crucial designs have not only affected the construction works on the ground, but have also made the procurement of materials very difficult. As one of our managers put it, 'Construction is not for the faint-hearted.' This statement rings true as often, you have to deal with a lot of variations



*Roadbed construction and subbase dumping on Staff Village roads.*

and delays, which in turn affect the whole spectrum of the project management plan, such as procurement of required materials to the actual execution of various construction activities. However, Bitumen World is a centre of innovation and we always find our way through setbacks because construction excellence is our motto. The Bitumen World Team has managed to keep pace with the program and the Client has applauded us for the commendable progress we have achieved so far on all fronts including occupational health, safety, environment and quality which are all integral parts of the Integrated Management System.

## Progress on Roads

We have managed to complete top-soil removal, box cutting to required levels and processing the roadbed. With our roads named in alphabetical order from the longest to the shortest, the progress of each activity can be easily tracked and analyzed. We have recently completed roadbed preparation and obtained approval from the Client. Approval of the roadbed gave us the much needed greenlight to



commence with construction of selected subgrade and subbase layers. All the roads have been dumped with the exception of parking areas, which will be targeted when we return to site next week after the month-end break. After we finish dumping and pre-shaping, the subbase layer is going to be cement-stabilised which is most likely going to commence next week. With no GPS-controlled grader on site, level control is being achieved by using a combination of boning and GPS. The project is hinged on accurate survey work, with every point on the new roads

being subject to tightly controlled levels. As highly demanding as the level control for this project is, our surveyors have successfully managed to transform what once seemed next to impossible into reality on the ground.

## Services

On the services front, 635m out of a total of 2,009m of sewer lines have been trenched to date. Bedding preparation and manhole bases for the sewer pipeline are scheduled to start next week, with some of the equipment having been received recently. Procurement of pipes, fittings and other

materials is currently underway, with some hiccups being faced on the importation and availability of some of the materials. Services are expected to start after subbase stabilization is complete, anticipated not later than two weeks from now. To further our cause in this regard, we have received 110mm diameter service ducts for crossings under roads.

## Main Access road

Work on the main access road to the Staff Village is at an advanced stage. Widening has been done and fill material has been dumped and processed to correct the undulations along the road. Currently we are working on dumping and processing the subbase layer, after which a crushed stone base will be dumped. The work is moving with great impetus and we are currently ahead of the program.

## The Bridge section

Construction of a pioneer rock layer was completed recently and was followed by several layers of fill compaction. With layer-works complete, erosion



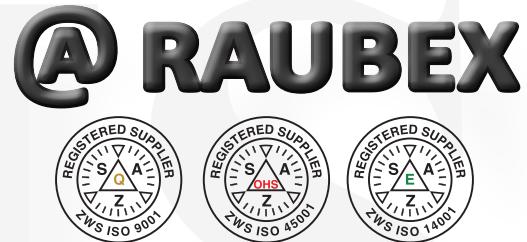
protection works kicked off last week. A concrete slab will extend 8m from the edge of the bridge to seal off the pavement layers, before a 150mm crusher run base is dumped on top.

140 cubic metres of gabions are being stacked on either side of the damaged bridge section, to protect the newly constructed pavement layers against erosion. 13m by 3 layers of gabions have been packed and stacked to date. The team has done great work preparing the gabion baskets, putting them in place, packing them and stacking them in accordance with the specifications and standards.





# Embracing the Integrated Management System



**W**ith our continued conformance to the ISO standards, and having been re-certified several times by SAZ, Bitumen World has integrated the three control systems of Quality Management (QMS), Environmental Management (EMS) and Occupational Health and Safety (OHS) into one umbrella system, namely the Integrated Management System (IMS). Just like the Cartesian coordinate system, Bitumen World's QMS, EMS and OHS thus form a three-dimensional control system consisting of three separate systems, all intersecting one common point, the 'origin,' which is now known as the IMS. Effective communication being the most crucial part of ensuring effective implementation of this integrated system, the Raubex Team has SHEQ Representatives who take it upon themselves to educate and lecture all the employees on the benefits and consequences of embracing and conforming to the IMS at all times.

## **QMS** Quality Management System

As part of the IMS, Quality Assurance and Control at the Raubex Staff Village is ensured by a series of processes and standards ranging from visual inspections, laboratory tests, checklists and standard codes of specifications such as COLTO. These control tools are in place to ensure that we produce high-quality products and services which are second to none, resulting in resilient infrastructure and high customer satisfaction. Laboratory work is made up of process control testing, which is carried out by Bitumen World, and then acceptance testing which is carried out by Raubex prior to approvals of works.

## **OHS** Occupational Health and Safety

The Raubex-Bitumen World Team continues to shine and inspire the Client with its overall SHEQ performance. A score of 97% was attained following an audit carried on the 11th of June 2021 to verify implementation of our approved SHEQ File. Kudos to Kangamwiro Mwadzingeni and Sydney Vhazhere, the joint-champions for SHE issues, and the rest of the Bitumen World/Raubex Team for raising the company's flag as high as humanly possible. Of importance to note is that the Client requires pre-employment medicals and antigen covid-19 test results for each worker before commencement of work. The Site team adheres to strict Covid-19 guidelines which include masking, temperature monitoring, social-distancing and sanitising in addition to the ongoing reviews and awareness on the pandemic.

## **EMS** Environmental Management System

As the champions of IMS, Bitumen World have managed to extend our prowess in environmental management wherever we go, and Beitbridge is no exception. We achieve our formidable EMS standards through a highly coordinated Site Management structure, which ensures that all oil spillages are contained, trees are not cut down unnecessarily, dust emissions are measured and controlled, water is not polluted and that land degradation is controlled. Our environmental management system is highly punctuated by a myriad of environmental audits from the Client (Raubex), designated internal auditors and also SAZ, which is the National Standards Body for Zimbabwe.

Our typical day starts with covid-19 temperature screening. This is followed by a toolbox talk meeting attended by all workers, which presents a great opportunity for planning, information sharing and risk communication. DSTI's and plant inspections are then executed before commencing works. A grievance procedure has been put in place to facilitate effective downward, upward, lateral and diagonal communication onsite and beyond. The Raubex site enjoys a peaceful Bitumen World culture of teamwork, unity and hard work which has resulted in an impressive job and high performance rating.