

BERGVLAM STREAM REHABILITATION PROPOSALS FOR A JOGGING TRACK AND PARK FURNITURE

The objective is not only to rehabilitate the Bergvlam stream, but to develop outdoor spaces where people can recreate, relax, enjoy and practice. The following is recommended:

Each part of the stream, between connector streets to the R40, to become the outdoor room for a specific school or facility which has direct access and benefit from the developed park.

Crossings Shopping Centre The Remainder of park 1197 and Remainder of Portion 6 of park 65.

Town Lodge: Park 367, park 2035 and The Remainder of 86.

Bergvlam High: Park 366 and park 365

Lowveld High: Park 45 and park 25

Laerskool Laeveld: Park Remainder of 1018 and 883

Tshwane University of Technologies Park Remainder of 1015 and Park 27

In this report the parks have been assessed to form a continuous jogging track passing bird hides, play parks, kick a ball areas and outdoor exercise areas, with some place for quiet reading and picnics. A natural space for an amphitheatre has also been identified.

All the schools can access the parks directly as well as the shopping centre and Town Lodge. Visitors as well as residents from other suburbs can drive to parking areas and use the park for training or picnics as well as outdoor recreation and meetings.

The book has been composed in three parts as follows:

- Part 1 Analyses of existing conditions
- Part 2 Proposals
- Part 3 Detail of furnishings and development proposed with cost estimates.

Each part has been addressed with maps and identification numbers of sites, as six open space areas, each having been adopted by an overseeing business, or educational management, taking care of the parks by informing the municipality on maintenance issues to be addressed over time.

OBSERVATIONS AND ANALYSIS OF EXISTING CONDITIONS

General Observations.

In general it has been found that the parks are dumping sites for garden and other refuse, overgrown with weeds, reeds, invader plants and have various badly eroded sections. The land seems to have been left unattended for many years resulting in vagrants using it for accommodation in the open. At the end of the stream two houses were found in storm water pipes. The one above a functioning pipe draining water from one side of the road to the other and the other in a deserted pipe dumped along the side of the stream, but not removed to a dump site. The occupants were mining sand from the river for the new development to the west. Even the contractor's TLB was found excavating sand from the side of the stream.

The dumping and blocked sewer pipes in the stream, leaving the site as a refuse dump with a bad aroma, where white soapy water has discoloured the leaves of plants causing sunburnt edges, leaves an environment which can cause disease as well as physical damage, to children and people utilising the land for maize and vegetable planting.

Storm water outlets into the stream have generally been cut too short, leaving an uneven eroded landscape. The pipes have to be lengthened and covered with filling so that the level areas along the stream can be enlarged, grassed and maintained.

The land has to be reclaimed piece by piece, to stop the dumping and allow levelling of heaps of garden, household and building as well as construction refuse.

Analyses.

The approach followed in rehabilitating the stream and use of the land along side the stream can be two fold;

1. Channel the stream and land fill the area on both sides of the stream to create large level areas to be grassed and planted with trees as shaded parklands. This was abandoned since it could create dangerous areas for children when the stream is in flood with a water channel which is actually not useable. It was also deemed to be a more expensive option than a landscaped option with increased land fill areas.
2. Land fill parts of the stream with land sloping down towards the midstream. The land fill areas to be graded with differentiating levels between flat areas, sloping areas, dams and other recreating and planted areas to encourage bird life and make it possible to create a different experience in outdoor activity in each park area. A planting and outdoor living space to be created in each park with a jogging track or tracks linking the park landscape together.

As the stream is opened up for pedestrian access and removal of vagrants, it should be finally developed and planted, since opened up areas with no development and finishing off, encourage dumping and squatting by vagrants because they cannot be seen and controlled. It also results in dangerous areas where people can be attacked.

CROSSINGS PARKS

Map A

These parks are at the eastern part of the shopping complex, lining the R40 with access to the shops between the two parks. The trench through the centre of the parks serves as a large storm water channel. Presently it is littered with human and plant refuse due to large volumes of storm water passing along the trenches during the past rainy season. Uprooted reeds and other wetland plants can be found in a haphazard and poorly kept environment. The parks are respectively 260 x 35m and 220 x 50m in size

1. A box culvert passes below grade, high and wide enough for a person to pass through. One side only to be used for stormwater, since the rise on the other side covering a sewer pipe, could be widened to be used as raised pedestrian path.
2. A small flood plain covered with grass. Can possibly be furnished with a bench under the trees, adding shade trees along the bank of the river. During periods of summer floods, the plain could be under water for a few days. Yellow and red finches are nesting in the trees.
3. On-grade pedestrian crossing possible from the sidewalk along the R40 to access the shopping complex or the route can pass onto the southern side of the R40 across the entrance to the N4 intersection. It is recommended that the sidewalk along the R40 be widened to 2,2 metres, to provide adequate distance from traffic.
4. It is possible to develop an alternative track along the rear boundaries of the business sites, by adding to the existing land fill on which temporary structures have been developed. Pedestrian crossing once again possible on-grade at the entrance to the shopping complex
5. The box culvert below the N4, is too small to be used by pedestrians. The intersection with slip ways is pedestrian unfriendly and it is suggested that an on-grade pedestrian crossing with clear road signage be considered, 60 metres from the N4-R40 intersection. This crossing could be taken along the rear boundary of the Light House to a level area south of erf 8 where an existing foot path has already been made.

TOWN LODGE PARK

MAP B

The on-grade pedestrian crossing across the N4 should be clearly sign posted from the robots at the old Pretoria Road intersection to Kaapse Hoop. The road filling drops steep from the N4 to the centre of the stream. The central part of the park is covered in dense, unkept undergrowth, which has been filled at various places along the western part of the park. Particularly along Acacia Crescent to Koorsboom Street. The park is approximately 290m long and 80m wide.

1. The on-grade pedestrian route from the N4 could be extended along the rear boundary of The Light house and erf 8 as well as Acacia Crescent, 2033, Town Lodge and the Remainder of erf 86.
2. The footpath behind the Light House could access a recessed toilet to be constructed in the palisade fence of the light house, to be closed at night with a sliding gate. The end of Acacia Crescent does not pass through to the park, but has been fenced into the outdoor space of the Light house.
3. The level play area next to the fence of the Light House can be extended along Acacia Crescent to provide space for a widened sidewalk, exercise equipment, benches for reading, relaxing, overseeing children playing and bird watching.
4. Below-grade pedestrian crossing possible, using the box culvert underneath Koorsboom Street to Bergvlam High park area.
5. Gate access to Town Lodge across neatly cut grassed area. A 2,6m wide path can be developed between the rear boundary of Town Lodge and the stream.
6. A possible site for a bird hide to watch the birds across the park in the Trees at 7. The path can be extended further to connect to the parking area of Town Lodge and up with slow monkey steps to the R40 sidewalk.
7. The existing sidewalk along Acacia Crescent can be widened to 2,2 metres to provide for two directional easy passing as well as shoulder to shoulder jogging or walking. The path to connect on-grade from 3 – 4.

BERGVLAM HIGH PARK

MAP C

Access to the park from Town lodge, is possible below grade or on-grade at Koorsboom Street. The park is approximately 380m long and 70m wide, with fairly steep sides. An on-grade walkway, up to 2,6m wide can be developed from Koorsboom Street to Geelhout Avenue, along Figtree and Kremetart Streets, by widening the existing sidewalk to 2,2 and 2,6m.

1. A level area which is grassed over which can possibly be extended to accommodate a play park with benches and training area.
2. The Old Age Home could possibly be connected on-grade to an extended landfill area for passive recreation and outdoor quiet area at (1).
3. Steep land fill area paved around netball courts, lowers accessibility for large numbers of pupils from the school to the park, via Kremetart street. Accessibility much improved opposite Nelacres shopping complex, by crossing into the parking area, alternatively, by widening the sidewalk along Geelhout Avenue past the parking area, up to Kremetart Street intersection with Geelhout Avenue.
4. The existing sidewalk can be widened or doubled up behind the Boabab trees. The addition of shade trees could create a shaded walk way for summer.
5. Below grade pedestrian access across Geelhout street not possible, the bunker is too low. It is recommended that the existing on-grade pedestrian crossing be reinforced with signage on both sides along Geelhout Avenue.
6. The school grounds have been fenced in recently and the opening of an access for Silulumanzi vehicles can be used as the basis for a jogging and walking track. The erosion should be stabilised.
7. Wetland type vegetation has been found calling for a board walk approach to the construction of a pedestrian path. Vehicular access cannot pass, it is too narrow between the fence and mid stream. A single file pedestrian walkway of 1,2m is possible.
8. Filling has not been secured for extending the sport field. Currently it is not in a good condition and can be eroded into the stream with heavy rains during the rainy season.

LOWVELD HIGH PARKS

MAP D.

The first park is approximately 330m long and 30m, increasing southwards to 80m wide. It stretches between Geelhout Avenue to Koraalboom Avenue, with extremely steep sides along the narrow part and landfill areas at different levels in the southern part. The second park is 110m long and, on average, 80m wide, between Koraalboom Avenue and Dr. Enos Mabuza Drive. The centre of the stream, in both parks, is more than 10 metres below grade of the streets abutting the park. An on-grade pedestrian crossing is possible at the existing one in Geelhout Avenue from the Bergvlam High park.

1. A 1,2-1,5m pedestrian route is possible between the mid stream and the rear boundaries of portions 1 – 4 of erf 365. Alternatively, it can be split with a 1,2m sidewalk along Kremetart Street and 1,5 along the rear boundary of the aforementioned erven.
2. A level grassed area which can be used for a play park, park furnishings for outdoor exercising and benches under shade trees for reading and supervising kids. The level area can be extended along Kremetart Street with land fill to enlarge the space which can be developed more formally. The existing sidewalk can be extended or split to form two single tracks, along the side of Kremetart Street up to Koraalboom Street. Kremetart Street and the jogging track with play areas can be developed as one space.
3. Below-grade crossing is possible at Koraalboom Avenue, as well as an on-grade crossing. A single file track approximately 1,5m wide is possible up to 4 with additional filling at the end. Land filling by Silulumanzi not compacted between (3) and (4)
4. Existing pipe line crossing the side stream provides a possibility of a boardwalk crossing along the side, also supported by concrete pillars in the stream. This could connect park 45 with 18/369 and 365. Jumping blocks could also be possible to cross the main stream to (2). The possibility of a bird hide on park 45 should be investigated for a bird walk from Geelhout Avenue to (1), (2) and (4). The edge of the play park to the midstream is steep, approximately 10m down, and a crossing of the stream is not possible.
5. The possibility of an additional pedestrian path, its width and views across the stream should be assessed. Access may need additional land fill or a board walk approach.
6. A children play park with toilet facilities and paved walk way has been developed in park 365. A roundabout, horse, slide, netball ring and hard concreted surface to bounce a ball or ride a tricycle, and an aeroplane frame, are all in need of maintenance. Rich bird life has been observed with bee eaters and the following tree species have been planted; Rooi essenhout, flamboyant, trichelias, white stinkwood, flame trees, papierbas, waterbessies, worsboom, tababuya ?
7. The possibility to lengthen the paved walkway to connect back to Geelhout Avenue via (5) should be investigated at the rear boundaries of erven 196 and 197. An overhung board walk could be a possibility.
8. Two routes for a walk way can be developed on the western side of the stream, one on grade with Kremetart Street and one lower down next to the stream. The crossing at Koraalboom Avenue will however have to be on-grade.

LAERSKOOL LAEVELD PARKS

MAPS E AND F

These parks are large and extend between Dr. Enos Mabuza Drive up to Laerskool Laeveld at Banket Street. It connects to Tinktinkie Street, Mossiesingel, Kelkiewyn Street, Percy Fitzpatric Street on the western side and Asbestos-, and Alibama Streets on the east. It comprises various side streams and catchment areas for storm water, has a wide centre part with narrower tentacles to the east and west. The sides are steep and the mid stream is more than 12 metres below grade from the streets. The shape is uneven and cannot easily be described. Silulumanzi has opened up the western part with a levelled walk way, which will be used and a small bridge over one of the side streams. The eastern side has not been opened up at all.

1. It is possible to cross Dr. Enos Mabuza Drive below-grade as well as on-grade. The steep gradient between (2) and (3) will have to be dealt with to avoid erosion.
2. Silulumanzi opened a new service road along (6) (4) and (7), with a bridge at (4), which can be used as basis of the track.
3. At this stage only one side of the stream should be opened up and developed since dumping occurs in many places due to the opening up of the road, and not developing the park. It has now become a dumping site due to dense bush and undergrowth which makes access across the stream difficult if not impossible. The steepness of the side slope on the east side also has to be cleared to establish the best place for access. A large number of bee eater nests and other bird life has been observed on the east side of the stream. The possibility of a bird hide on the western side should be investigated further.
4. Silulumanzi bridge across the side stream.
5. It is possible to create an alternative track from (5) by widening the sidewalk from Percy Fitzpatric along Kelkiewyn Street to (6) and down to the Silulumanzi track next to the stream at (4)
6. The interface of the sidewalk and park from (6) to (9) should be dealt with to maximise the view into the stream area.
7. Dense bush that need to be cleared to establish whether the stream can be crossed.
8. The development of a children play area furnished with additional planting, equipment and seating arrangement should be investigated. The connection from (8) along the rear boundaries of 910 and 911 in Alibama Street, to form a future track on the east side of the stream should be possible.

LAERSKOOL LAEVELD PARKS

MAPS E AND F

The park has an uneven shape with side streams to the east and west. The park area widens and evens out, in the middle and is accessible from both the west and east sides. It will be possible to cross the stream with a gabion to create a dam or alternatively jumping blocks could be made by implanting damaged storm water pipes upright in the stream bed and filling it with concrete.

The sides of the stream are steep and in some areas land fill has been done. Most of the accessible areas have become dumping grounds for household, garden and construction refuse. Silulumanzi's path along the western side of the stream has opened up the area for dumping along the stream.

1. The connectivity of the stream landscape to Alibama Street should be established. It seems possible. A gabion has been constructed across the side stream and it may be possible to cross the side stream with steps coming down from erven 885 to 905 and 906.
2. The service road of Silulumanzi follows through on the west side of the stream with steep sides and an open area which could be used to develop an open air gathering space or amphitheatre.
3. It is possible to connect the jogging track to Mossie Singel
4. The open flat area could be cleared up for a kick about space for children. It is more than 6m down from the surface of the street.
5. The level grassed area next to Tinktinkie Street could be extended with land fill for formalised park development as children play park or quiet reading space. Joggers may be able to access the service road of Silulumanzi from here with steps.
6. Level grassed area which could be incorporated in the development of the Stream rehabilitation project.
7. Extension of park landscape to Topaz street with level grassed and treed area.
8. Laerskool laeveld has closed the stream with land fill as a parking area. The area has two levels of which one level has not yet been put to any clear use.
9. Levelled area up to Banket Street.
10. It will be difficult to develop a pedestrian connection along the tennis court fence. The sides of the river is steep and midstream close. Dense undergrowth and wetland conditions up to (13)
11. Accessibility from (10) to (11) is difficult due to steep slopes. mid stream is more than 10m down.
12. parking of vehicles possible underneath the power lines. Land has been levelled and no permanent structures can be constructed underneath the power lines.
13. Wetland conditions but it is possible to cross the stream due to levelling out of midstream. A gabion could possibly be constructed or jumping blocks.
14. Environmental Education facility proposed. It is possible to enter sport fields of laerskool laeveld from the stream area.
- 15.

The park is long and shaped as two rectangular spaces joining at two thirds of the length. It is approximately 600m long and varies in width between 60 and 90m. It stretches from Banket Street up to the R40, and Narina Trogin Drive opposite the entrance to Tshwane University of Technology. It abuts Akwamaryn Street and Ruby Street to the east, with Graniet Street in the west. The mid stream drops down steeply for more than 8m from Ruby Street and 2m from the R40 road surfaces for approximately 250m at any time. The park has two – 3 possible dam sites for bird watchers and people who prefer to recreate, meet and/or socialise, outdoors.

1. An on-grade crossing is possible from the parking area to the stream.
2. The terrain is uneven due to erosion and dumping of refuse. It can be levelled to provide space for park furniture and recreation. Bee eaters nests have been found in the side wall of the stream.
3. It is possible to cross the stream at the storm water outlet.
4. The track can be extended along the road from (2) – (3) – (4)
Deep erosion in riversand which seems to have been washed down from higher up in the stream due to sand mining. Erf 26 is vacant. The dam has been silted up in the stream at erf 24, and is covered in bamboo and invader plants of 3 – 4m in height. It is possible to develop a narrow passage along the stream past the rear boundary of erf 22, and a gabion crossing of the stream. At erven 16 – 19 it is not possible to pass along the rear boundaries, and it should be investigated whether a track can be developed along this route.
5. The dam site has been silted up with river sand which has 1,5 – 2m erosion trenches. It is possible to cross the stream with a gabion and increase the dam size so that it can either silt up to create a low level waterfall or a dam with permanent water to introduce fish in the stream.
6. A main water pipe of Silulumanzi crosses the stream. The land forms a wide level area approximately 1,5 – 2m below grade which provides space for a possible grassed area to be developed for children to kick a ball and exercise sport moves.
7. The area from (7) – (8) is a refuse dump. The recently installed storm water pipes provide opportunity to cross the stream on-grade. Storm water pipes installed at different heights could increase erosion. One damaged storm water pipe and the pipe installed on top of another pipe are serving as housing to vagrants.
8. Refuse dump.
9. Erosion due to sand mining. The contractor of the residential development has made a service road next to the fence to mine building and river sand from the stream. His TLB uses the road regularly.
10. It is possible to cross the stream to erf 15 on the opposite bank of the stream. A storm water outlet between erven 1050 and 1051 causes erosion in the stream bed.

PROPOSALS FOR THE DEVELOPMENT OF A JOGGING AND WALKING TRACK ALONG BERGVLAM STREAM.

General Description of Finishes.

The total length of the track from the entrance of Crossings Shopping Centre southwards, as a circle route on the eastern and western side of Bergvlam stream is approximately 6,5km if the complete circle route has been completed. The length will vary, depending on where the stream is crossed and which of the alternative routes are chosen.

It is recommended that after the land has been levelled at particular areas indicated along the track, it be grassed and planted with trees as set out in the relevant section on each of the six park areas. This will limit further dumping due to visibility as well as limit vagrants residing in the stream under the undergrowth.

Clearing the undergrowth and developing the stream with trees and grassed areas will increase visibility from side streets as well as properties abutting the stream area, improving surveillance by the community.

Where on-grade road crossings are suggested, clear signage should be posted on the side of the roads to create an awareness with drivers of entering a pedestrian zone.

It is recommended that Eco-bond be used to create a dust free and maintenance free surface. The surface to be stabilised on the sides with treated wooden strips 150x38mm treated wooden or concrete strips, to form the interface between the grassed areas and the paving. The grassed areas to be maintained by slashing it regularly during summer and autumn, i.e. from November – end of May. Monkey steps to be developed with eco bond surface and treated wood risers held in place with 0,5m long treated wooden dropper pegs 50mm in diameter, sunk into the ground for 350mm with hardcore filling at the back.

The areas below and around all play equipment, such as swings, horse, jungle jims and roundabouts, as well as park benches to be hardened with ecobond.

Level areas to be grassed with **xxxxxxxx** and slopes with **xxxxxxxx**. Grass on level areas only to be slashed for maintenance to encourage horizontal spread and coverage.

CROSSINGS PARKS

Map AA

The total length of the track along both sides of the two parks is 950m from AA to (5) and back including existing sidewalks and monkey steps at (5). From the entrance at Crossings northwards to Nelro Ford and back as a figure 6 past the entrance to the N4 could also be done excluding the part along the R40 from the entrance to the N4.

1. The existing sidewalk from the entrance at AA along the R40 should be widened for 350 m, with the same paving to 2,1 metres to provide distance from traffic along the road. A new track can be levelled for 2,5m wide by adding land fill along the rear boundaries of erven Re/1197 up to the entrance to the shopping centre at AA.
2. A single file track, approximately 1,2m wide can be developed along the rear boundary of erven to erf Re/6/65, between the stream, the parking area, Waltons, news Café and the garden centre, to a distance of 250m. Alternatively the paved sidewalk along the R40 can be widened and lengthened with 50m, using the same paving blocks, past the intersection of the R40 and N4 up to (5).
3. Clear signage should be posted on-grade along the N4 to indicate vehicles entering a pedestrian zone at the robot controlled area.

TOWN LODGE PARK

Map BB

A circle route of 700 m could be developed on-grade between (6)BB along (1) – (4) – BB with connections into Town lodge and the Light House. The route could include a widening of the sidewalk at (2) along Acacia Crescent, from the light house up to Koorsboom Street with monkey steps downwards, to cross below-grade to the Bergvlam High park at (3).

1. The track could remain on-grade after crossing the N4.
2. Develop the sidewalk, street and park as one space with trees separating vehicular movement from pedestrian movement. The sidewalk can be split with a lane of trees in the middle to provide shade. The same paving blocks should however be used.
3. Below-grade crossing is possible into the Bergvlam High park area between Koorsboom street and Geelhout Avenue. The track can be lengthened with an additional 850m up to 1,5km if combined with the Bergvlam High park.
4. The sidewalk along the R40 can be widened from the parking area at Town Lodge for 150 m up to BB(6). Rich bird life has been observed in the trees at (2) which calls for a bird hide to be sited at (4).
5. An on-grade crossing is possible at (5) by retaining the track on a widened sidewalk, in crossing the stream.

BERGVLAM HIGH PARK

Map CC

It is possible to develop a 2,5m wide track or walkway, on-grade from CC(1) – (8) AS A 850m long circle route with monkey steps at (1) and (8).

1. Monkey steps are needed at (1) and (8) parallel to Koorsboom street to cross the street below-grade into Town Lodge park area. Alternatively the route can remain on-grade along the sidewalk of Koorsboom street and Geelhout Avenue, on the east side of the mid stream.
2. The existing paved sidewalk can be widened to 2,5m along Figtree and Kremetart streets, or be developed as a dual path, using the same paving blocks with shade tree planting along the middle or on both sides.
3. The level grassed area along the former two streets can be widened with land fill to provide space for sport equipment, childrens play park furnishings and outdoor benches. A reading or outdoor group meeting area could be developed at (3).
4. The sidewalk on one side of Geelhout Avenue, between (4) and (5) should be widened with the same paving blocks, to be at least 1,2m for single file pedestrian movement. Outdoor sport and training equipment with the addition of shade trees could be provided in this space between the track and mid stream.
5. Increase the levelled area with additional land fill.
6. Access could be provided to Bergvlam High School sport grounds, at (6) or (7).
7. A natural wetland area has to be dealt with here. It seems that the new fence of the school has been erected into the park landscape. This area may have to be crossed with a board walk up to (8)
8. A board walk may have to be developed here for approximately 50m instead of a paved walk way, to protect the wetland.
9. Access can be provided at this point to Lowveld High sport fields.

LOWVELD HIGH PARKS

Map DD

Two circle routes can be developed from the on-grade crossing at Geelhout Avenue. The one from (1) –(4)-(8)-(9)-(13)-(14)-(15) and back to (1) being 800 m long
The other from (1)-(4)-(8)-(9)-(10)-(11)-(12) and Bergvlam High, being 1,0km long

1. The existing sidewalk, could be widened to 2,5m, into park 365 up to erf 4/365 along Kremetart street, by using the same paving blocks. It can be taken from there, past the rear of Ptns 1-4/365 along (2), at a width of 1,5m back to Kremetart street further on at (3).
2. Widen the track to 2,5m
3. The existing sidewalk can be widened to 2,5m and the land fill area at (4) could be enlarged to develop a level area as a kick about and play park with a reading area under shade trees with outdoor benches.
4. Additional shade trees to be added between (3) and (4) with benches.
5. The sidewalk along the one side of Koraalboom Avenue to be widened to a minimum of 1,8m from (5) – (8)
6. Widening of sidewalk to 2,5m to pass a possible bird viewing point.
7. Widen level area of park with land fill to create larger level areas for formal knee high landscaping.
8. It is possible to develop a single file jogging track along the pipe line crossing the stream up to (9)
9. A play area for children could be extended with a lower lying kick about space.
10. Shade trees should be added along a paved path of 2,5m wide.
11. Outdoor park benches to be provided at the children play area underneath shade trees.
12. It is possible to widen the existing sidewalk along the one side of Alibama Street to accommodate a 1,0km long track partly in the road.
13. A single file track is possible, only with a treated wooden board walk past the rear of the erven.
14. A bird hide could be situated at this point with a quiet reading space under a large shade tree to be planted.

LAERSKOOL LAEVELD PARKS

Map EE

It is possible to pave a walkway or jogging track, 2,5m wide from (1)-(3)-(6)-(7)-(8)-(1) being 850 m long, crossing the stream at (3) along a possible dam wall constructed of gabions at (4). The side stream could be crossed at (6) across the existing gabion with monkey steps at (7).

1. Two level areas at differing heights could be developed, by smoothing the uneven landscape adding additional land fill, equipped with a horse, slide, sand pit, outdoor bench shade trees and outdoor exercise equipment.
2. A below-grade crossing of the street is possible from (2) – (9) at Dr. Enos Mabuza Drive.
3. jumping blocks could be developed in the stream to allow stream crossing, alternatively a gabion wall can be developed for a dam at (4)
4. An additional dam site is possible, which could over time be silted up naturally for water bird life in a newly created marshy landscape.
5. Monkey steps or concrete steps should be made to access the gabion across the side stream to (6).
6. Existing gabion could be used to cross the stream.
7. Monkey steps or concrete steps should be made to move from the stream upwards to the rear of erven at (8)
8. A level on-grade crossing of Dr. Enos Mabuza Drive is possible to join the on grade tracks on the west side of park 25.

The area along both sides of the track should be levelled for at least 1,5m and planted with lawn grass to be cut short to accommodate larger groups of joggers. The track should be provided with a hardened surface for at least 2,5m wide in most instances.

LAERSKOOL LAEVELD PARKS

Map FF

The jogging track in the southern part of park Re1018 could be developed at 2,5m along the western side of the stream by using the service road of Silulumanzi as basis for hardening the surface. It is important that a levelled area of at least 1,5m be grassed on both sides of the track to provide additional space for larger school groups. At the eastern side of the stream a 1,2m wide track is possible up to Banket Street. The total length of the track from the stream crossing to Banket Street, as a circle route, is 850m long.

Laerskool laeveld can be accessed at (8) via an Environmental Education Centre to be developed next to the electrical sub-station or via Alibama street main entrance to the school.

1. The possibility of using the natural embankment of the stream to develop an amphitheatre for music recitals should be considered and investigated.
2. The possibility to cross the stream, planting damaged storm water pipes on end in the stream up to the hard rock, and filling them with concrete as jumping blocks to the school sport fields of Laerskool Laeveld should be considered.
3. The possibility to extend a third levelled area next to the stream, lengthening the bunker, to have a gathering area for runners to start a fun run or training session could be considered at this point.
4. Runners can park or gather in the parking area for a fun run or practice run along the stream. An outdoor practicing area with benches and shade trees along the fence, could be considered at this end.
5. An on-grade crossing can be done by widening the sidewalk along Banket Street.
6. This area can be levelled to form a kick about space.
7. The sidewalk can be widened from (7) – (9) with a cantilevered treated wooden board walk around the edge of erf 885 up to (9).
8. A kick about space can be developed with edge planting.
9. A treated wooden board walk to be cantilevered here.
10. Monkey steps should be made down to the gabion crossing the side stream.
11. A parking area to be developed underneath the power lines to accommodate visitors during school sport events, as well as to the Environmental Centre. The track can be extended along Alibama Street to enter Laerskool Laeveld at its main entrance to the sport fields.

A 2,5m wide walkway or jogging track can be constructed as a ring road, including monkey steps and a gabion to stabilise the existing dam, for 1,35km starting and ending at (1).

1. The sidewalk can be widened to 2,5m along one side of the street, or the road surface could be used, for 50m between the intersections.
2. a 2,0m wide gabion, for 50m across the stream, could secure the dam, as well as the jogging track across the stream.
3. Monkey steps, 2,5m wide should be constructed with treated timber risers for 30m from the end of the gabion uphill to a path next to the palisade fence.
4. The uneven land should be levelled to create a parking area on both sides of the stormwater outlets between contour 777,5 and 778.
5. Monkey steps, 2,5m wide with treated timber risers should be constructed in the land fill from the top of the parking area to natural ground level.
6. Monkey steps should be constructed from the 767 contour to 761,5 for approximately 35 metres to prevent soil erosion along the track.
7. The road surface should be extended to create a larger turning circle as a parking area for two or three vehicles. The side of the side next to the dam should be furnished with 2 shade trees, and an outdoor bench.