

**BIKE ON | NEW ZEALAND  
CHARITABLE TRUST**

**Bikes**  
in Schools

# KENNETT BROTHERS SKILLS TRACK

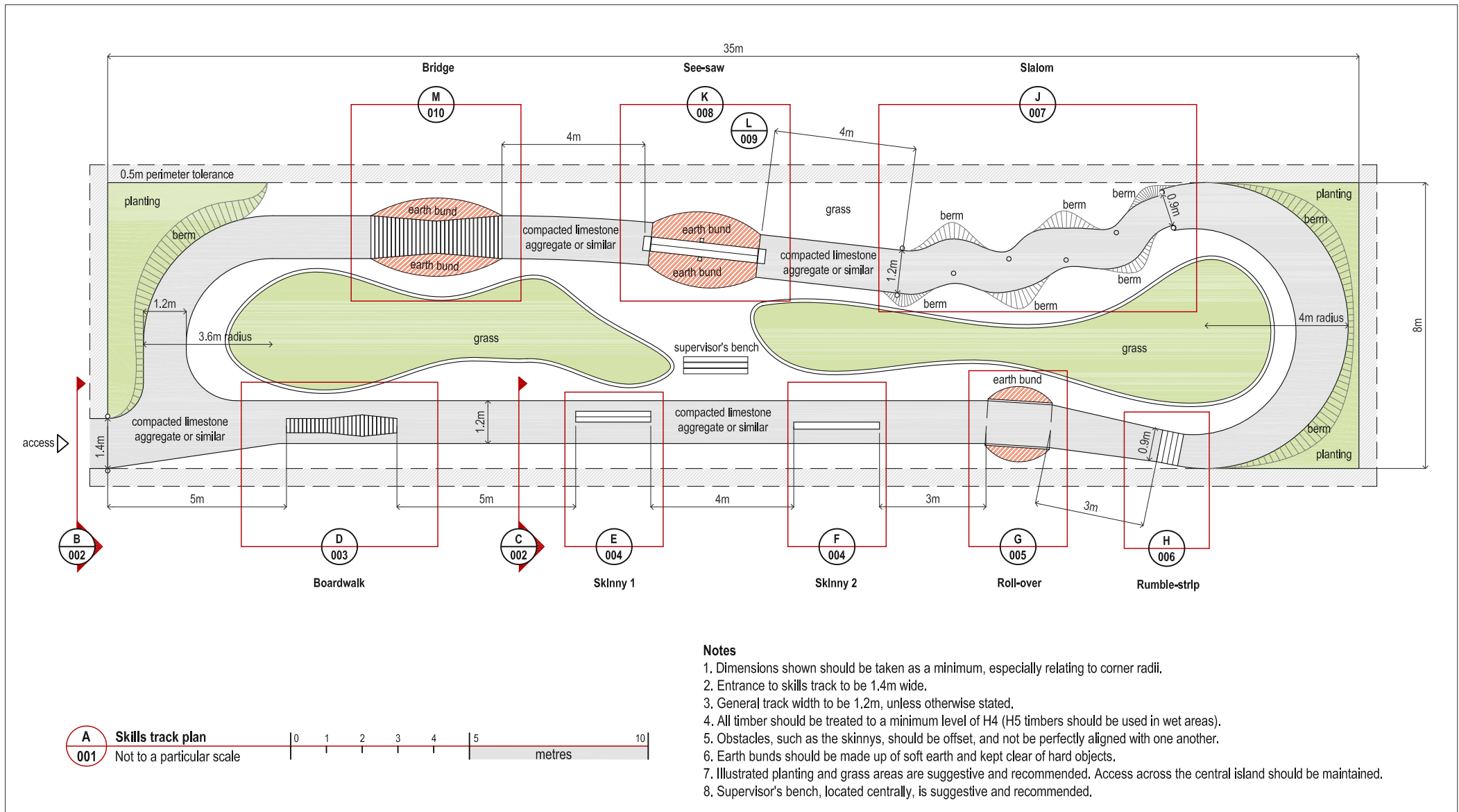
## layout and technical construction drawings

### 2012

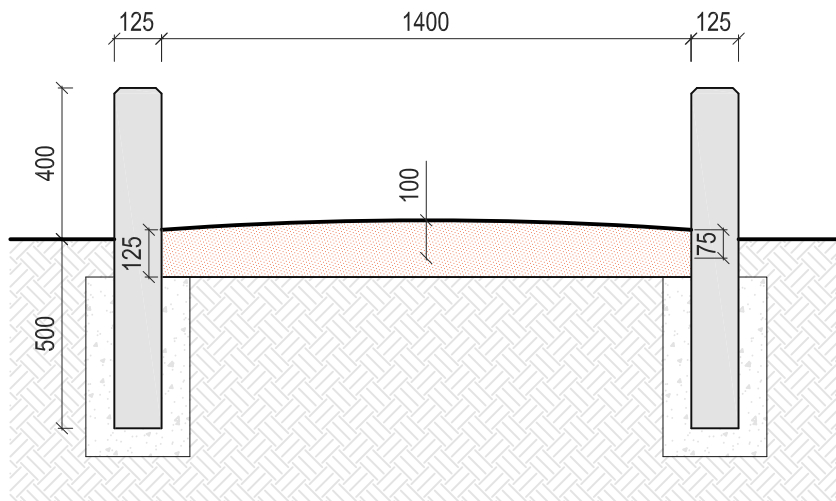


The Bike On New Zealand Charitable Trust

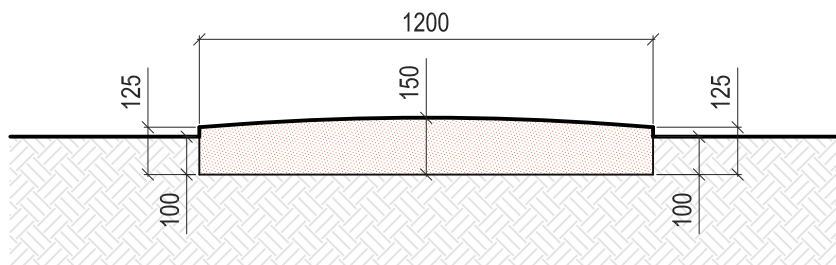




<p>JOB / DRG</p> <p><b>120 001</b></p> <p>REVISION C (11-06-2012) B (21-04-2012) A (18-04-2012)</p>	<p>PROJECT NAME</p> <p><b>BIKES IN SCHOOLS - SKILLS TRACK</b></p> <p>DRAWING NAME</p> <p><b>PLAN - STANDARD SKILLS TRACK OVERVIEW</b></p> <p>CLIENT NAME</p> <p><b>THE BIKE ON NEW ZEALAND CHARITABLE TRUST</b></p>	<p>These designs are the recommended best-practice, as tried and tested in schools in Hawkes Bay.</p> <p>The designs should be regarded as a template for the skills track, so that the order and number of obstacles may vary to suit the site.</p> <p>The Bike On New Zealand Charitable Trust and Studio Fisher do not accept any liability for damage to properties or persons that might result from poor construction or mis-use of the obstacles.</p>	<p>DATE</p> <p>18 / 04 / 2012</p> <p>SCALE</p> <p>NTS @ A4</p> <p>PROJECT STAGE</p> <p>CONSTRUCTION</p> <p>DRAWN BY</p> <p>HF</p>	<p>DO NOT SCALE FROM DRAWINGS FOR CONSTRUCTION - USE WRITTEN DIMENSIONS ONLY</p> <p>THE CONTRACTOR / MANUFACTURER SHALL VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCING WORK</p>	<p><b>STUDIO FISHER</b></p> <p>studiofisher@hotmail.co.nz 022 129 2602 www.studiofisher.weebly.com</p>
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**B(1)** Skills track entrance section  
002 1/20



**C** Skills track general section  
002 1/20

#### General Track Construction

Mark out track with a minimum 1200mm width.

Remove 100mm topsoil along track area (retain soil to use as landscaping on island within the track).

Lay weed-barrier membrane in excavated ground, or treat area with herbicide to slow weed growth.

Lay lime-sand aggregate (or similar to suit locally available sources), to a depth of 125mm at the track edges and 150mm at the track centre.

Ensure aggregate is laid with an even camber from centre to edges.

Using a compactor, compact aggregate to a minimum of 25mm, to match existing GL. The aggregate must be sufficiently damp to bind when compacted, to make a firm and hard surface.

#### Entrance Post Construction

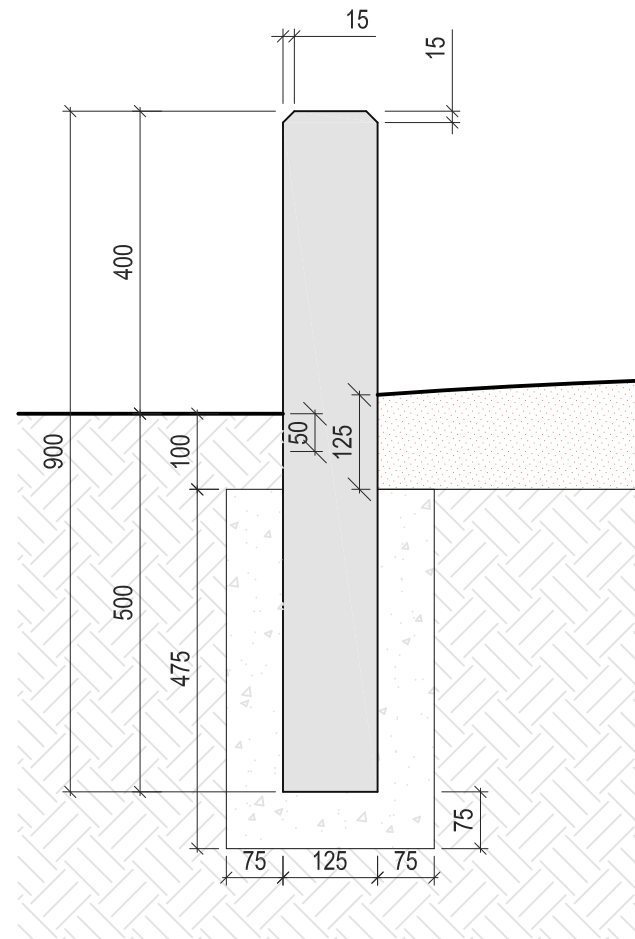
Set 2 / 900 x 125mm diameter H4 treated posts to leave a minimum of 1400mm gap between inner edges.

Set posts in concrete at a depth of 500mm below GL, with a minimum 75mm covering all round, with the upper surface of the concrete footing a minimum of 100mm below GL.

Rasp all post edges to a minimum 15mm chamfer. Rasp all other sharp edges that are exposed.

Apply additional timber treatment to all timber cut edges, as required.

Form slight ramp to the entrance path (a thickening of the aggregate), level with the entrance posts to mark the start of the skills track.



**B(2)** Entrance post detail  
002 1/10

JOB / DRG  
**120 002**  
REVISION C (11-06-2012)  
B (21-04-2012)  
A (18-04-2012)

PROJECT NAME  
BIKES IN SCHOOLS - SKILLS TRACK  
DRAWING NAME  
DETAIL - SECTION THROUGH TRACK AND ENTRANCE POSTS

CLIENT NAME  
THE BIKE ON NEW ZEALAND CHARITABLE TRUST

PROJECT NAME  
BIKES IN SCHOOLS - SKILLS TRACK

DETAIL - SECTION THROUGH TRACK AND ENTRANCE POSTS

THE BIKE ON NEW ZEALAND CHARITABLE TRUST

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DATE 18 / 04 / 2012

SCALE 1 / 10 and 1 / 20 @ A4

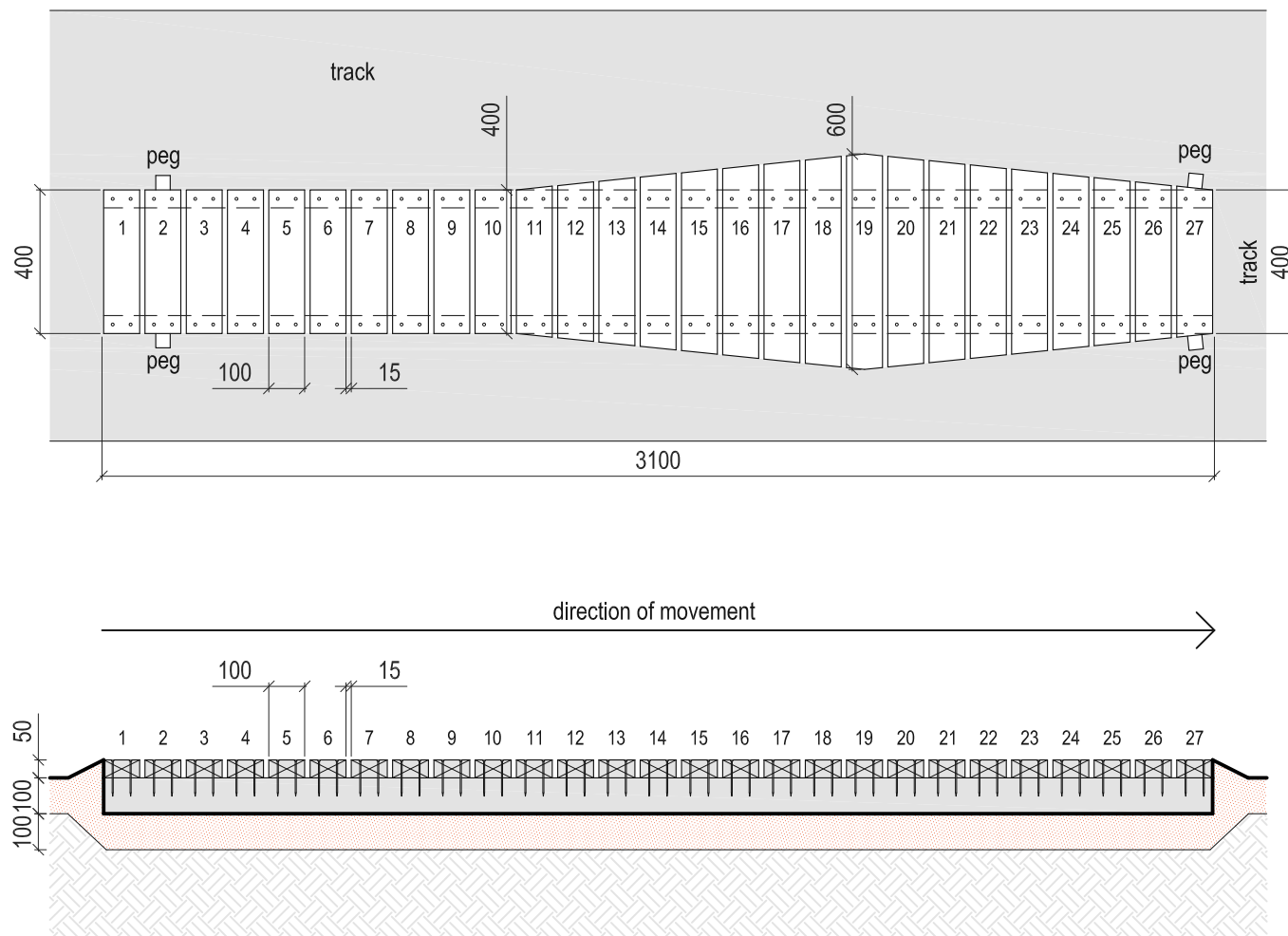
PROJECT STAGE CONSTRUCTION

DRAWN BY HF

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**D(1) Boardwalk plan and long section**  
003 1/20  
0 100 200 300 400 500 1000  
millimetres

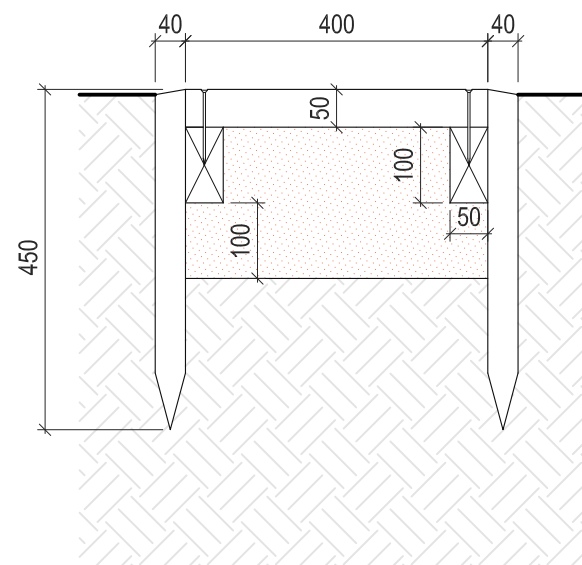
### Boardwalk construction

Set 50 x 100mm H4 treated timbers (widths range between 400mm and 600mm as shown in the diagram) with 15mm gaps between each board.

Fix boards to 2 / 50 x 100mm H5 treated timber rails, positioned on end as shown, with 4 / 100 x 3.15mm lost-head nails to each board (ensure nail-heads are fully below the deck surface). Apply additional timber treatment to all timber cut edges, as required.

Lay boardwalk obstacle in a bed of compacted aggregate to ensure free-drainage of water around the timbers, so it sits 50mm above the finished track surface. Thicken the track to construct small ramps to the approach and exit of the obstacle, as shown.

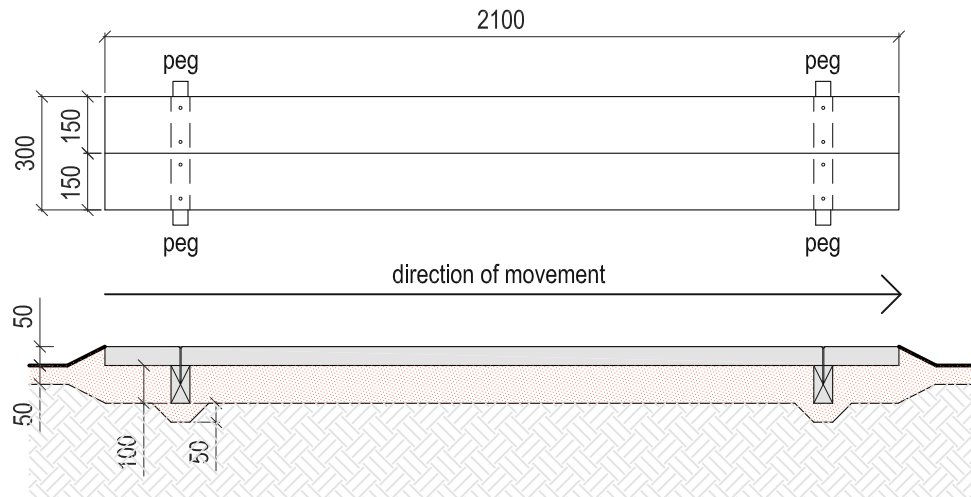
Secure boardwalk from moving laterally with 4 / 40 x 40 x 450mm H4 treated timber pegs, positioned as shown and hammered into the ground flush with the GL. Rasp all sharp edges that are exposed.



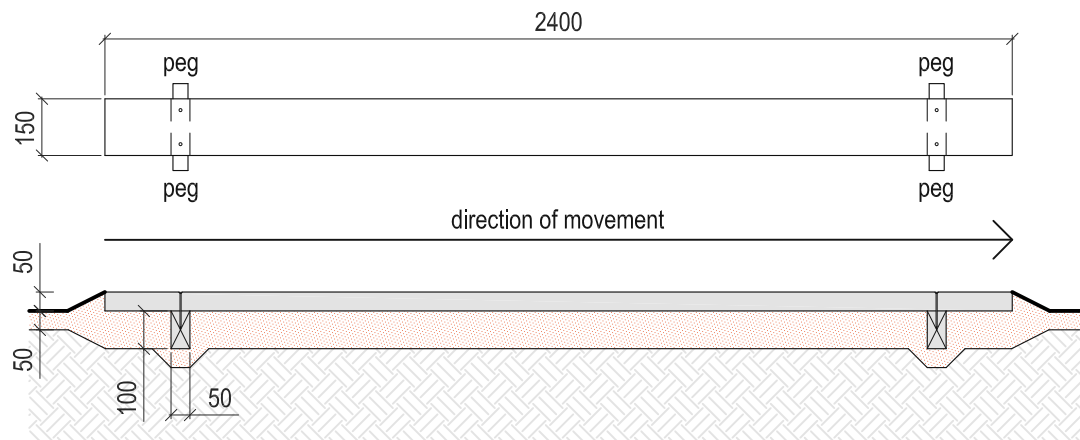
**D(2) Boardwalk short section**  
003 1/10  
0 50 100 150 300  
millimetres

<p>JOB / DRG <b>120 003</b> REVISION C (11-06-2012) B (21-04-2012) A (18-04-2012)</p>	<p>PROJECT NAME <b>BIKES IN SCHOOLS - SKILLS TRACK</b></p> <p>DRAWING NAME <b>DETAIL - BOARDWALK CONSTRUCTION</b></p> <p>CLIENT NAME <b>THE BIKE ON NEW ZEALAND CHARITABLE TRUST</b></p>	<p>These designs are the recommended best-practice, as tried and tested in schools in Hawkes Bay.</p> <p>The designs should be regarded as a template for the skills track, so that the order and number of obstacles may vary to suit the site.</p> <p>The Bike On New Zealand Charitable Trust and Studio Fisher do not accept any liability for damage to properties or persons that might result from poor construction or mis-use of the obstacles.</p>	<p>DATE 18 / 04 / 2012</p> <p>SCALE 1 / 10 and 1 / 20 @ A4</p> <p>PROJECT STAGE CONSTRUCTION</p> <p>DRAWN BY HF</p>	<p>DO NOT SCALE FROM DRAWINGS FOR CONSTRUCTION - USE WRITTEN DIMENSIONS ONLY</p> <p>THE CONTRACTOR / MANUFACTURER SHALL VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCING WORK</p>	<p><b>STUDIO FISHER</b> studiofisher@hotmail.co.nz 022 129 2602 www.studiofisher.weebly.com</p>
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**E(1) Skinny 1 plan and long section**  
004 1/20



**F(1) Skinny 2 plan and long section**  
004 1/20

#### Skinny 1 construction

Butt 2 / 50 x 150mm H4 treated timbers close together with no gap.

Fix timbers to 2 / 50 x 100mm H4 treated timber battens positioned on end as shown, with 4 / 100 x 3.15mm lost-head nails (ensure nail-heads are fully below the deck surface).

#### Skinny 2 construction

Fix 1 / 50 x 150mm H4 treated timber to 2 / 50 x 100mm H4 treated timber battens positioned on end as shown, with 2 / 100 x 3.15mm lost-head nails (ensure nail-heads are fully below the deck surface).

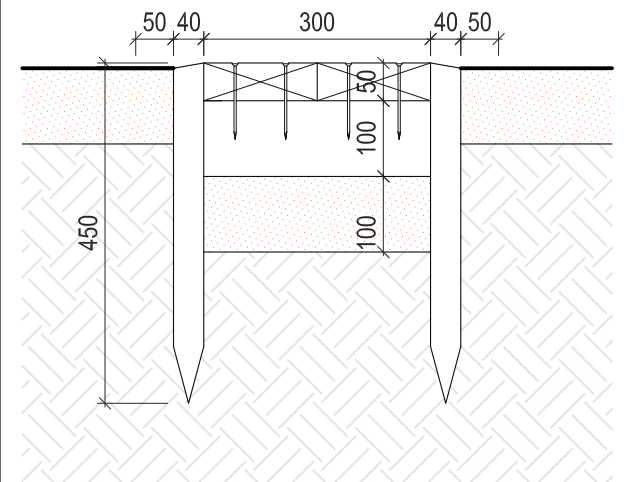
#### General construction

Apply additional timber treatment to all timber cut edges, as required.

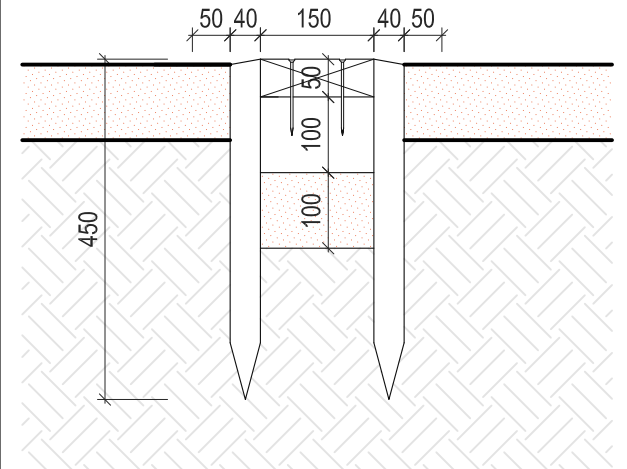
Lay the skinnys in a bed of compacted aggregate to ensure free-drainage of water around the timbers, and ensure that they sit 50mm above the finished track surface.

Secure the skinnys from moving laterally with 4 / 40 x 40 x 450mm H4 treated timber pegs, set at 200mm from each end and hammered into the ground flush with the finished GL.

Rasp all sharp edges that are exposed.



**E(2) Skinny 1 short section**  
003 1/10



**F(2) Skinny 2 short section**  
004 1/10

JOB / DRG  
**120 004**  
REVISION C (11-06-2012)  
B (21-04-2012)  
A (18-04-2012)

PROJECT NAME **BIKES IN SCHOOLS - SKILLS TRACK**  
DRAWING NAME **DETAIL - SKINNY 1 AND SKINNY 2 CONSTRUCTION**  
CLIENT NAME **THE BIKE ON NEW ZEALAND CHARITABLE TRUST**

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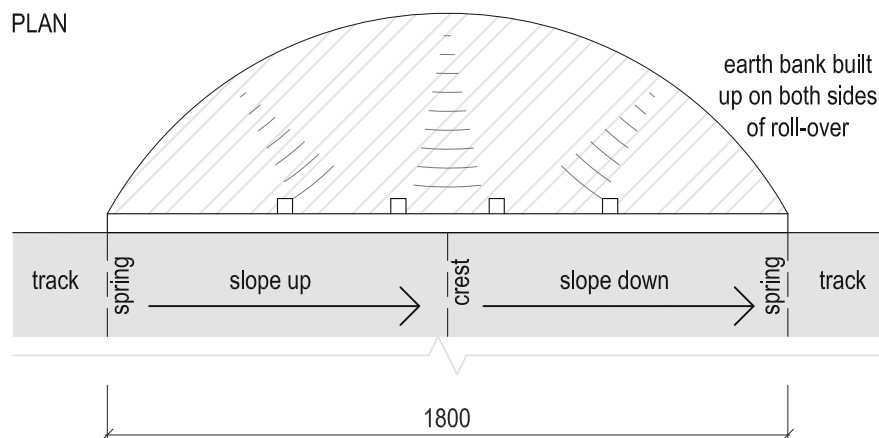
DATE 18 / 04 / 2012  
SCALE 1 / 10 and 1 / 20 @ A4  
PROJECT STAGE CONSTRUCTION  
DRAWN BY HF

DO NOT SCALE FROM DRAWINGS FOR CONSTRUCTION - USE WRITTEN DIMENSIONS ONLY

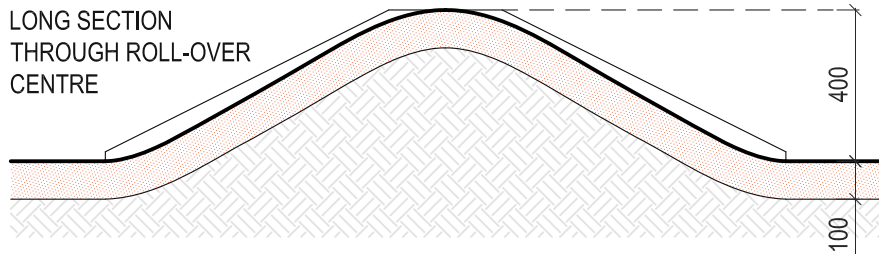
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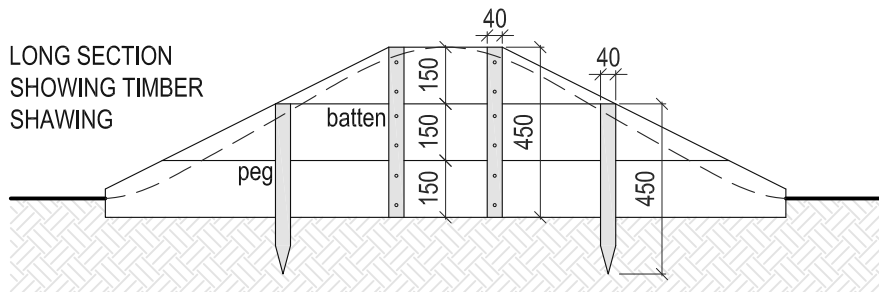
## PLAN



## LONG SECTION THROUGH ROLL-OVER CENTRE



## LONG SECTION SHOWING TIMBER SHAWING



## G(1) Roll-over plan and long section

005 1/20 0 100 200 300 400 500 1000 millimetres

## Roll-over construction

Construct shawing for either side of bridge from 3 / 50 x 150mm H4 treated timbers, butted close with no gap as shown, and cut to a profile to match the slope of the ramp, as shown.

Fix the shawing together with 2 / 40 x 40mm H4 treated timber battens with 6 / 50 x 3.15mm lost-head nails (ensure nail-heads are fully embedded); and,

2 / 40 x 40mm H4 treated timber stakes with 4 / 50 x 3.15mm lost-head nails, positioned so a minimum of 150mm protrudes at the base of the shawing.

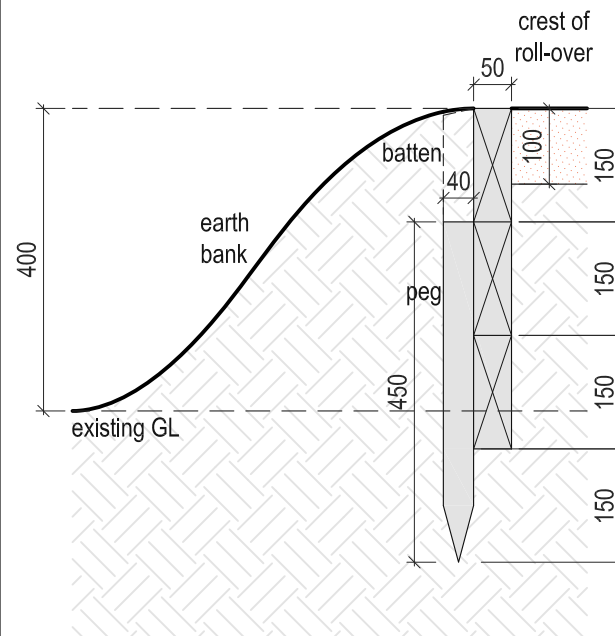
Apply additional timber treatment to all timber cut edges, as required.

Drive the stakes into undisturbed soil to set the shawing to the required level.

Build the soil up and compact between the shawing until the desired profile is achieved. Construct the bridge surface to match the track surface (i.e. 125mm minimum lime-sand aggregate or similar laid and compacted to 100mm thickness).

Further support the shawing on the outside of the bridge obstacle by building up soft-earth banks, as shown.

Rasp all sharp edges that are exposed.



## G(2) Roll-over short section

005 1/10 0 50 100 150 300 millimetres

JOB / DRG  
**120 005**  
REVISION C (11-06-2012)  
B (21-04-2012)  
A (18-04-2012)

PROJECT NAME  
**BIKES IN SCHOOLS - SKILLS TRACK**

DRAWING NAME  
**DETAIL - ROLL-OVER CONSTRUCTION**

CLIENT NAME  
**THE BIKE ON NEW ZEALAND CHARITABLE TRUST**

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SCALE 1 / 10 and 1 / 20 @ A4

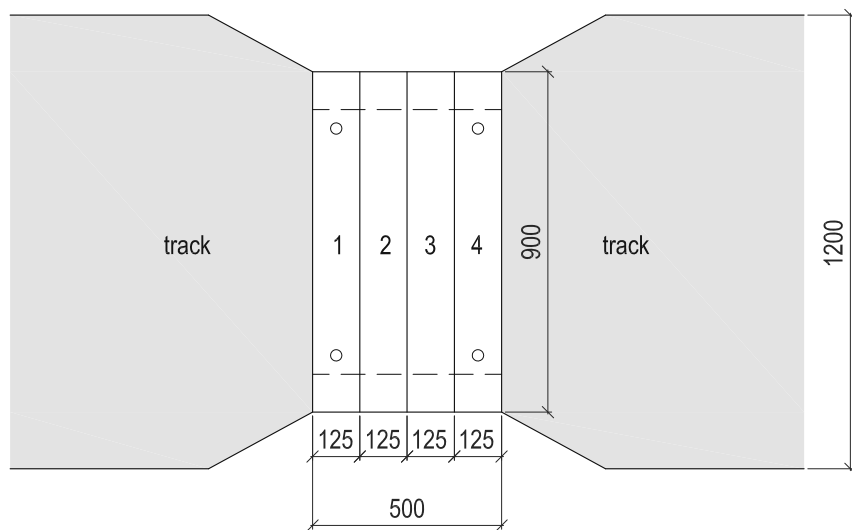
PROJECT STAGE CONSTRUCTION

DRAWN BY HF

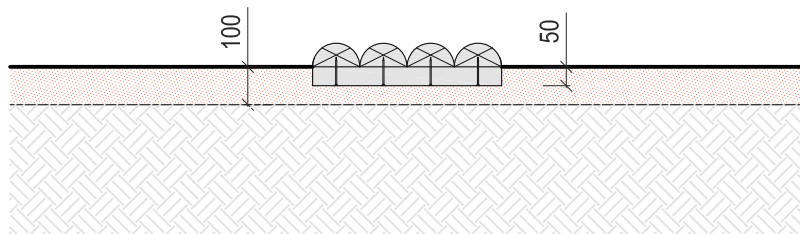
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direction of movement →



**H(1)**  
**006** Rumble-strip plan and long section  
1/20  
0 100 200 300 400 500 1000  
millimetres

### Rumble-strip construction

Narrow the track surface to 900mm wide as it leads up to and away from the rumble-strip obstacle, as shown in Drg 120-001.

Construct the rumble-strip from 4 / 125mm H4 treated timber half-rounds butted close with no gaps, as shown.

Fix half-rounds to 2 / 50 x 100mm H4 treated timber rails laid flat, with 4 / 75 x 3.15mm lost-head nails to each half-round, as shown (ensure nail-heads are fully embedded).

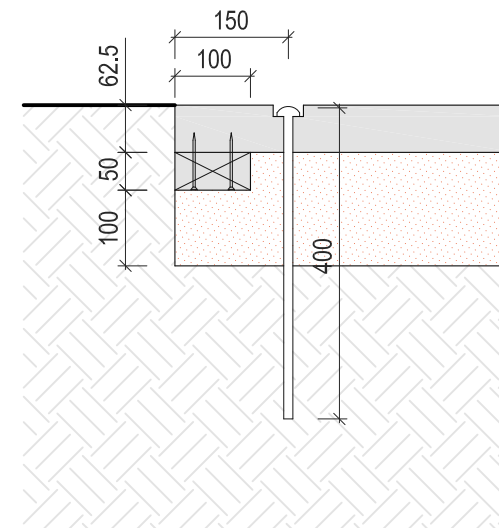
Apply additional timber treatment to all timber cut edges, as required.

Lay rumble strip obstacle at a depth of 25mm below finished GL of track in a bed of compacted aggregate to match the track surface to ensure free-drainage of water around the timbers.

Secure the obstacle from moving laterally with 4 / 400 x 12mm steel round-headed rods, positioned as shown and driven into the ground.

Ensure the rod holes are counter-sunk on the top-side of the obstacle so that the rounded-heads can sit below the surface of the timber, as shown.

Rasp all sharp edges that are exposed.



**H(2)**  
**006** Rumble-strip short section  
1/10  
0 50 100 150 300  
millimetres

JOB / DRG  
**120 006**  
REVISION C (11-06-2012)  
B (21-04-2012)  
A (18-04-2012)

PROJECT NAME **BIKES IN SCHOOLS - SKILLS TRACK**  
DRAWING NAME **DETAIL - RUMBLE-STRIP CONSTRUCTION**  
CLIENT NAME **THE BIKE ON NEW ZEALAND CHARITABLE TRUST**

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DATE 18 / 04 / 2012

SCALE 1 / 10 and 1 / 20 @ A4

PROJECT STAGE CONSTRUCTION

DRAWN BY HF

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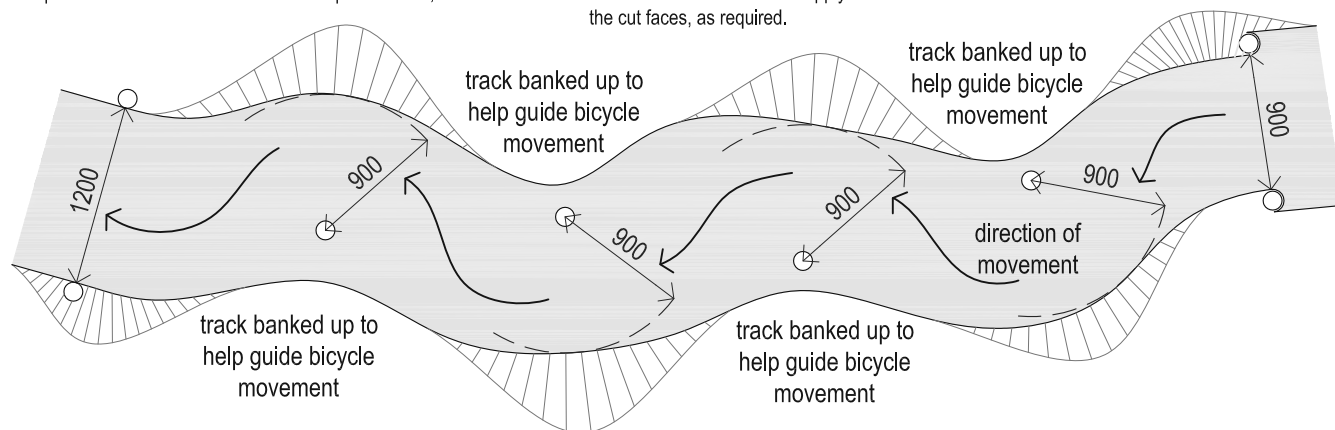
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The slalom track surface should begin at 900mm wide between the inner faces of the entrance posts, and continue to have a minimum of 900mm on the preferred side of every intermediate post, with the track surface banked up to help turn the bicycles, as shown. The clear-width between the exit posts is 1200mm.

Set 125mm diameter H4 treated timber posts in concrete at a depth of 500mm below finished GL, with a minimum 75mm covering all round, and the upper surface of the concrete footing at a minimum of 100mm below finished GL.

Angle-cut all posts to a minimum 15 degrees, with the open face directed towards the obstacle entrance, and rasp all post edges to a minimum 15mm chamfer. Apply additional timber treatment to the cut faces, as required.

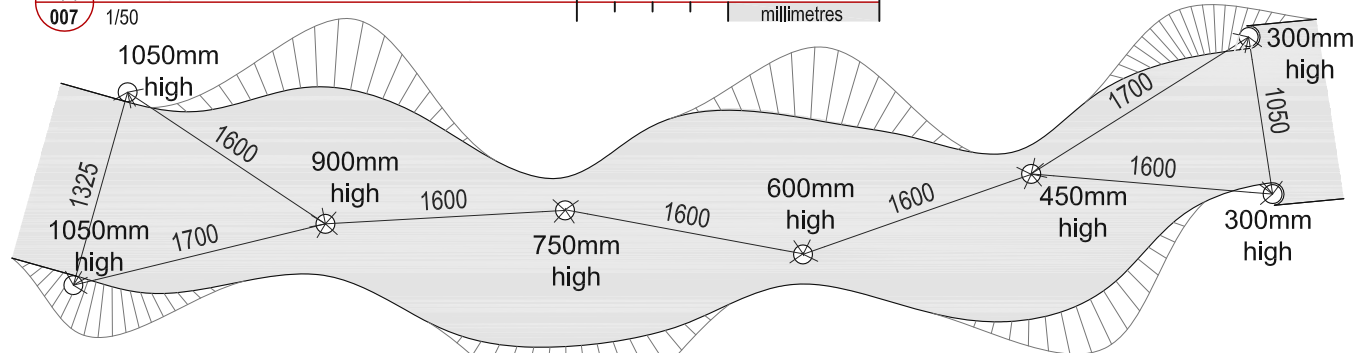


**J(1) Slalom plan - minimum track widths around posts**

007 1/50

0 250 500 750 1000 2000

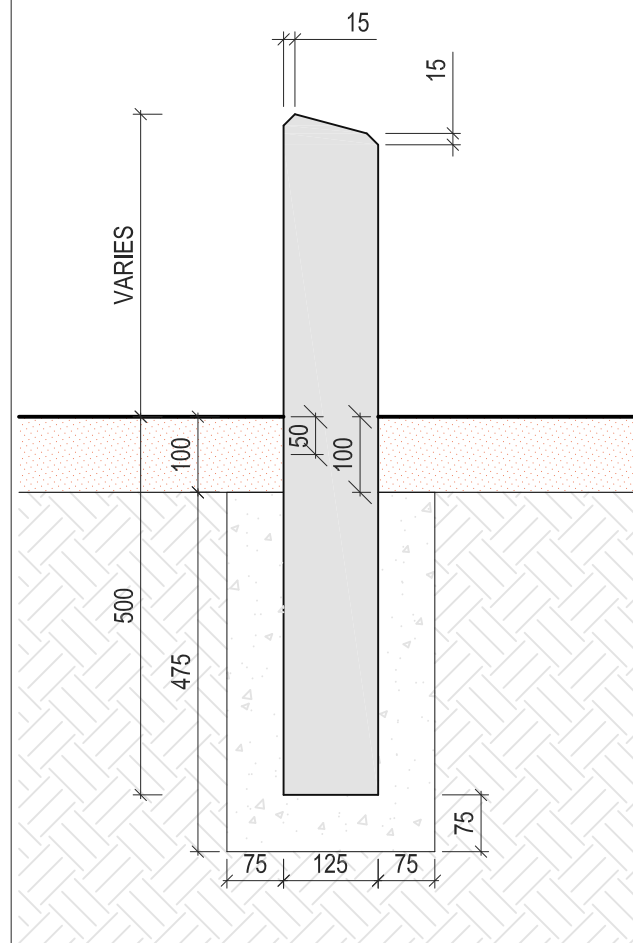
millimetres



**J(2)** **Slalom plan - post distribution measured from centres**

**007** 1/50


0 250 500 750 1000 2000 millimetres



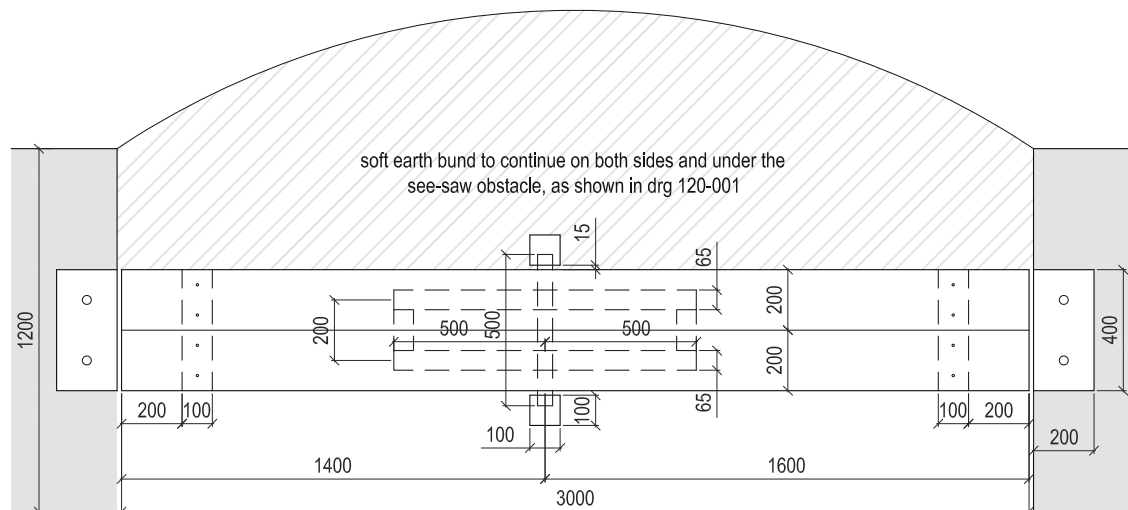
**J(3) Slalom post detail**

007 1/10

0 50 100 150 300  
millimetres

JOB / DRG <b>120 007</b> REVISION C (11-06-2012) B (21-04-2012) A (18-04-2012)	PROJECT NAME	<b>BIKES IN SCHOOLS - SKILLS TRACK</b>	These designs are the recommended best-practice, as tried and tested in schools in Hawkes Bay.	DATE	18 / 04 / 2012	DO NOT SCALE FROM DRAWINGS FOR CONSTRUCTION - USE WRITTEN DIMENSIONS ONLY  THE CONTRACTOR / MANUFACTURER SHALL VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCING WORK	 studiofisher@hotmail.co.nz 022 129 2602 www.studiofisher.weebly.com
	DRAWING NAME	<b>DETAIL - SLALOM CONSTRUCTION</b>	The designs should be regarded as a template for the skills track, so that the order and number of obstacles may vary to suit the site.	SCALE	1 / 10 and 1 / 50 @ A4		
	CLIENT NAME	<b>THE BIKE ON NEW ZEALAND CHARITABLE TRUST</b>	The Bike On New Zealand Charitable Trust and Studio Fisher do not accept any liability for damage to properties or persons that might result from poor construction or mis-use of the obstacles.	PROJECT STAGE	CONSTRUCTION		
				DRAWN BY	HF		





#### See-saw construction

Butt 2 / 50 x 200mm H4 treated timbers close together with no gap. See-saw timbers must be high-quality clear-grade, with no knots, shakes or twists.

Fix timbers to 2 / 50 x 100mm H4 treated timber battens with 4 / 75 x 3.15mm lost-head nails (ensure nails-heads are fully embedded).

Construct steel frame and pivot as detailed in Drg 120-009 and fix see-saw boards to it with 8 / D10 100mm round-headed steel bolts, as shown. Bolts must be fixed on the underside of the boardwalk with 50 x 50 x 3mm steel washers and 'lock-tight' nuts.

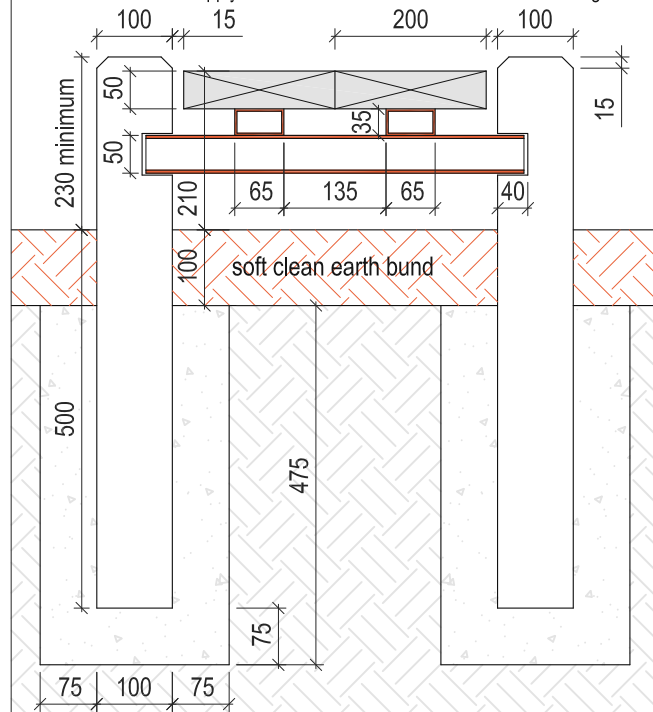
Rasp all sharp edges that are exposed.

#### Support construction

Drill 55mm diameter holes to a depth of 40mm in 2 / 100 x 100mm H4 treated posts as shown below (holes to accept steel pivot). Set posts, with steel-frame and pivot inserted, in concrete footings (as entrance post construction) to leave a minimum of 430mm gap between inner edges, as shown. Rasp edges to 15mm chamfer.

Excavate the ground beneath the obstacle so that the see-saw can land flush with the adjoining track finished GL. Cover the ground to the sides of the obstacle in clean soft earth, as shown.

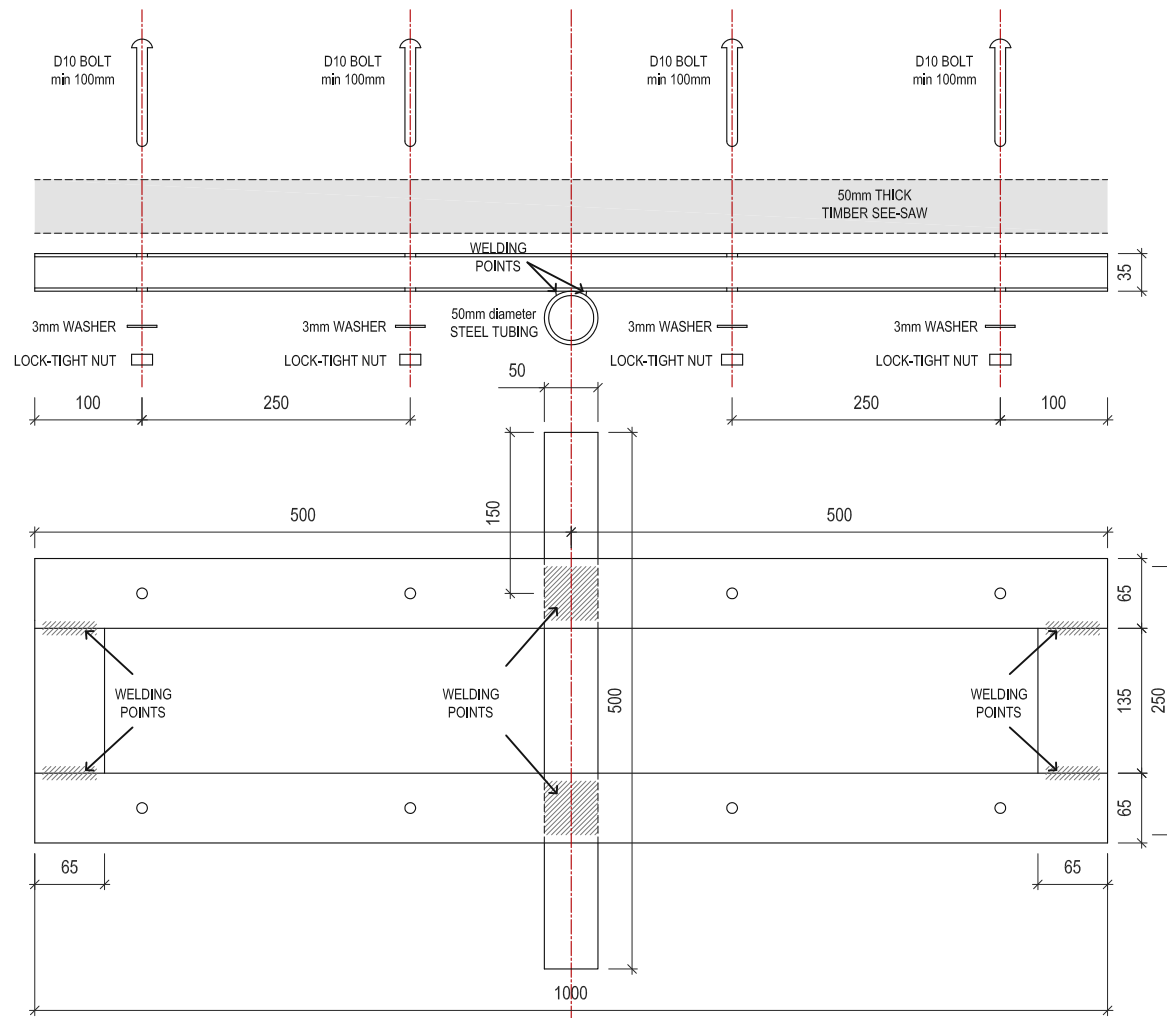
Construct 2 / 50 x 200mm landing plates at either end of the see-saw, with a 15mm gap, and secure with 2 / 400 x 12mm diameter steel rods, as rumble-strip obstacle construction. Apply additional timber treatment to all timber cut edges.



**K(1)** See-saw plan and long section  
**008** 1/25

**K(2)** See-saw short section  
**008** 1/10

<p>JOB / DRG</p> <p><b>120 008</b></p> <p>REVISION C (11-06-2012) B (21-04-2012) A (18-04-2012)</p>	<p>PROJECT NAME <b>BIKES IN SCHOOLS - SKILLS TRACK</b></p> <p>DRAWING NAME <b>DETAIL - SEE-SAW CONSTRUCTION</b></p> <p>CLIENT NAME <b>THE BIKE ON NEW ZEALAND CHARITABLE TRUST</b></p>	<p>These designs are the recommended best-practice, as tried and tested in schools in Hawkes Bay.</p> <p>The designs should be regarded as a template for the skills track, so that the order and number of obstacles may vary to suit the site.</p> <p>The Bike On New Zealand Charitable Trust and Studio Fisher do not accept any liability for damage to properties or persons that might result from poor construction or mis-use of the obstacles.</p>	<p>DATE 18 / 04 / 2012</p> <p>SCALE 1 / 10 and 1 / 25 @ A4</p> <p>PROJECT STAGE CONSTRUCTION</p> <p>DRAWN BY HF</p>	<p>DO NOT SCALE FROM DRAWINGS FOR CONSTRUCTION - USE WRITTEN DIMENSIONS ONLY</p> <p>THE CONTRACTOR / MANUFACTURER SHALL VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCING WORK</p>	<p><b>STUDIO FISHER</b></p> <p>studiofisher@hotmail.co.nz 022 129 2602 www.studiofisher.weebly.com</p>
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**L** See-saw steel frame and pivot construction  
**009** Not to a particular scale

0 50 100 150 200 250 500  
 millimetres

### Steel frame construction

Construct 1000 x 65 x 3mm box steel frame, welded with a 150 x 65 x 3mm length of box steel at both ends.

Drill 8 / holes in the 1000mm lengths to take D10 bolts, located as shown.

Weld a 500mm length of 50mm diameter steel tubing to the centre of the steel frame, as shown.

Drill 8 / holes in the see-saw decking and fix steel frame to the underside with round-head D10 bolts, as detailed in Drg 120-008, with 50 x 50 x 3mm washers and lock-tight type nuts.

JOB / DRG  
**120 009**  
 REVISION C (11-06-2012)  
 B (21-04-2012)  
 A (18-04-2012)

PROJECT NAME  
 DRAWING NAME

**BIKES IN SCHOOLS - SKILLS TRACK**

**DETAIL - STEEL FRAME AND PIVOT CONSTRUCTION FOR THE SEE-SAW OBSTACLE**

CLIENT NAME

**THE BIKE ON NEW ZEALAND CHARITABLE TRUST**

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SCALE 1 / 10 and 1 / 25 @ A4

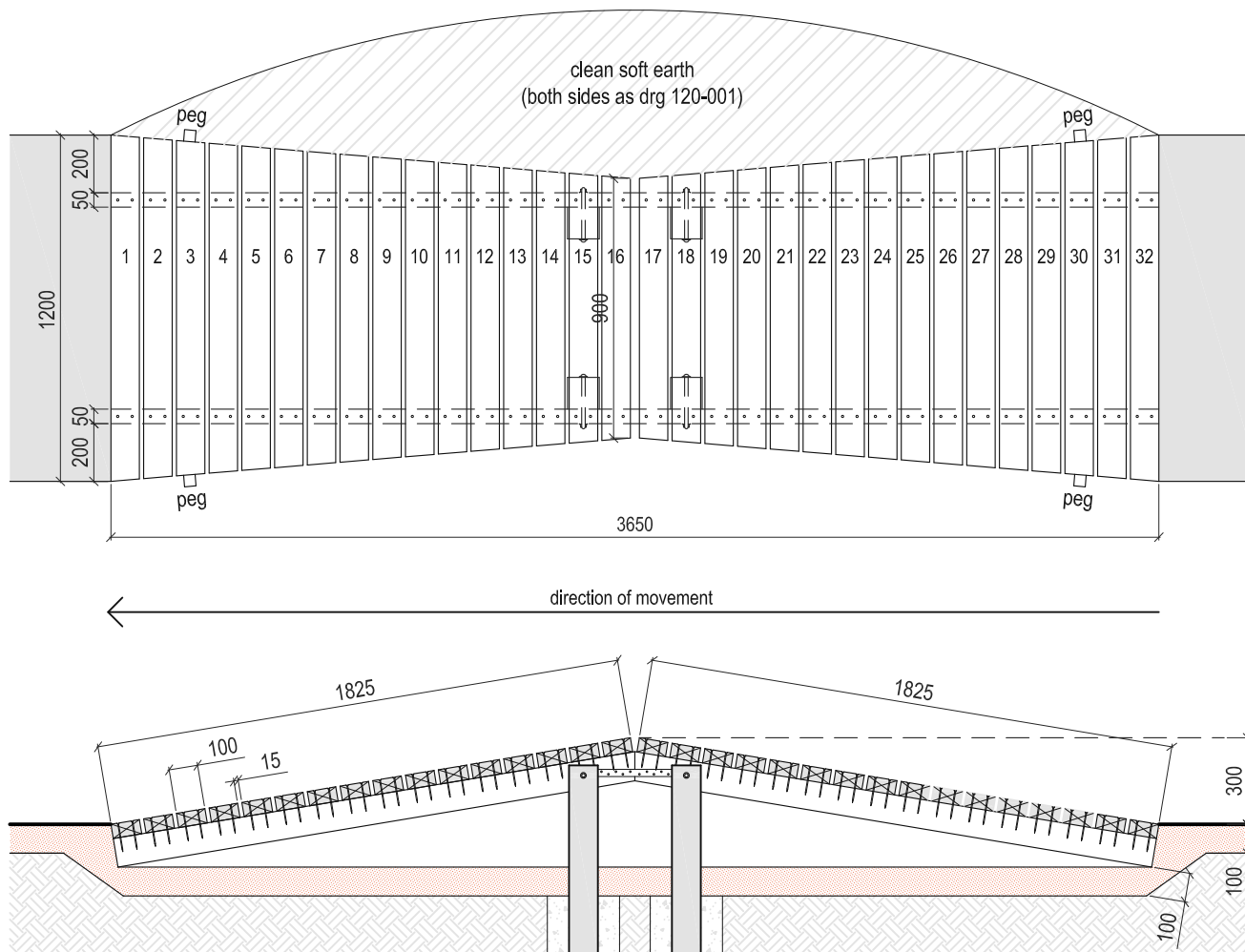
PROJECT STAGE CONSTRUCTION

DRAWN BY HF

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**M(1) Bridge plan and long section**  
010 1/25

### Bridge construction

Construct two boardwalks, as follows -

Set 16 / 50 x 100mm H4 treated timbers (width ranges between 1200mm and 900mm as shown in the diagram) with 15mm gaps between each board.

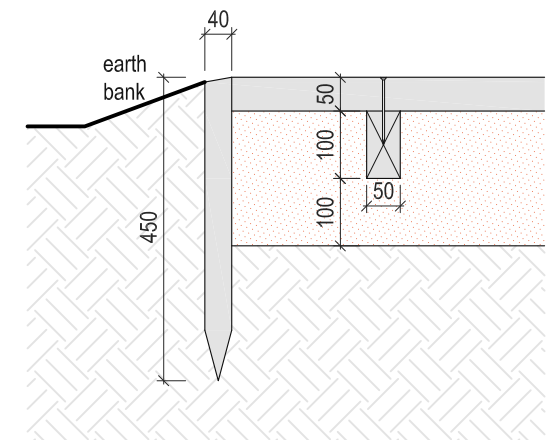
Fix boards to 2 / 50 x 100mm H4 treated timber rails, positioned on end as shown, with 4 / 100 x 3.15mm lost-head nails to each board (ensure nail-heads are fully below the deck surface). Apply additional timber treatment to all timber cut edges, as required.

Fasten boardwalks together at central point with steel straps nailed to timber rails, so that they form a bridge-shape that has a 300mm rise at the centre, as shown.

[NB: this height can be increased to 400mm, depending on the skill-level of the intended users].

Affix boardwalk with D12 steel bolts, to 4 / 100 x 100mm H4 treated timber posts as shown, set a minimum of 500mm into undisturbed ground with concrete footing, as entrance post construction.

Secure boardwalk from moving laterally with 4 / 40 x 40 x 450mm H4 treated timber pegs, positioned as shown and hammered into the ground flush with the GL. Rasp all sharp edges that are exposed.



**M(2) Bridge short section**  
010 1/10

JOB / DRG  
**120 010**  
REVISION C (11-06-2012)  
B (21-04-2012)  
A (18-04-2012)

PROJECT NAME  
**BIKES IN SCHOOLS - SKILLS TRACK**

DRAWING NAME  
**DETAIL - BRIDGE CONSTRUCTION**

CLIENT NAME  
**THE BIKE ON NEW ZEALAND CHARITABLE TRUST**

These designs are the recommended best-practice, as tried and tested in schools in Hawkes Bay.

The designs should be regarded as a template for the skills track, so that the order and number of obstacles may vary to suit the site.

The Bike On New Zealand Charitable Trust and Studio Fisher do not accept any liability for damage to properties or persons that might result from poor construction or mis-use of the obstacles.

DATE  
18 / 04 / 2012

SCALE  
1 / 10 and 1 / 25  
@ A4

PROJECT STAGE  
CONSTRUCTION

DRAWN BY  
HF

DO NOT SCALE FROM  
DRAWINGS FOR  
CONSTRUCTION - USE WRITTEN  
DIMENSIONS ONLY

THE CONTRACTOR /  
MANUFACTURER SHALL VERIFY  
ALL DIMENSIONS ON SITE PRIOR  
TO COMMENCING WORK

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