Hynds Driftdeck system

Technical Guide R4.2

Low traffic volumes in forestry areas, national parks etc, often do not warrant expensive bridge structures such as box culverts or large diameter pipes at small river crossings.

07.25 | RURAL | R4.2 HYNDS DRIFTDECK SYSTEM

Applications

- Low level stream crossings
- Provides raised carriageway access
- Wide shallow opening

Product Attributes

- Durability
- Economical solution to low level crossing
- Minimum interference with low flows
- Large openings allow easy passage of debris at low flows
- Large openings are friendly to the passage of fish

Quality/Environment/Health & Safety

- Hynds management systems are certified to ISO 9001:2015, 45001:2015, and 14001:2018 standards

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Low traffic volumes in forestry areas, national parks etc, often do not warrant expensive bridge structures such as box culverts or large diameter pipes at small river crossings.

Often the crossing is a concrete slab which follows the profile of the stream, and provides a running surface for the traffic. Even at low flows these fiords usually have water flowing over the road surface, and safety requirements often do not permit traffic across them.

Raising the running surface by approximately 600mm will considerably reduce the period of time the crossing is closed. The use of a large number of small diameter pipes is not desirable as it obstructs the flow of water and is likely to trap even small debris.

Features

- Durability
- Strength
- Economical solution to low level crossing
- Robust
- Minimum interference with low flows
- Simple to install
- Reduced on-site work
- Large openings allow easy passage of debris at low flows
- Large openings are friendly to the passage of fish

Drift Decks

Drift decks are a simple economical solution to this problem.

The surface is raised typically by 600mm to provide generous openings to allow the passage of water at low flows.

The drift deck comprises a series of inverted “u” shaped precast concrete elements, bearing on a concrete slab. The units extend the full width of a single carriageway, and butt together longitudinally across the stream bed, providing the running surface for the traffic.

Design Considerations

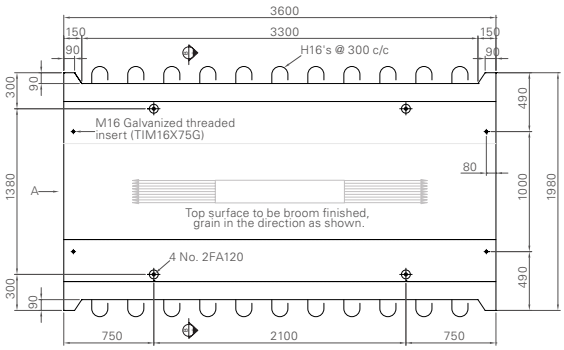
- Units sit on new or existing foundation slab.
- Designed for HN-HO-72 loading configuration.
- Units are designed to be overtopped during periods of high flow.
- Simple joint ensures structural integrity.
- Joint links units longitudinally and to the foundation.
- Castellated ends add to the shear capacity of the joint.
- No in-situ topping is required.
- Geometry of the units eliminates the need for shuttering at the joints.
- The units are held together and fixed to the foundation by means of a simple joint.
- Unit tops have a textured finish for better traction.
- Low mass for easy installation.
- Can be installed to a vertical catenary.

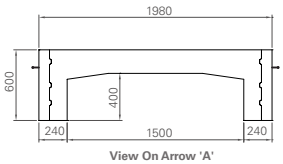
Construction

Construction of a stream crossing using drift deck units is simple.

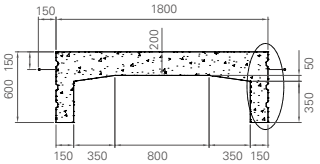
- It is necessary to have a suitable foundation slab, either existing or new.
- Level bearing pads are constructed at the appropriate locations to suit the drift deck units and dowel holes are drilled at each joint location (note: it is important that the units sit on the bearing pads without any twist).
- Drift deck units are placed at the correct centres, by Hiab truck.
- The edges of the units are aligned, dowel bars are inserted into the pre-drilled holes and grouted.
- Dowel bars fit into the 'U' shaped bars at the ends of the units and are bent over prior to concreting of the joint.
- Joint is concreted (shuttering is not required for concreting the joint).
- Deck is completed by the fixing of timber kerbing.
- Once the joint concrete is cured, the crossing is ready for traffic.

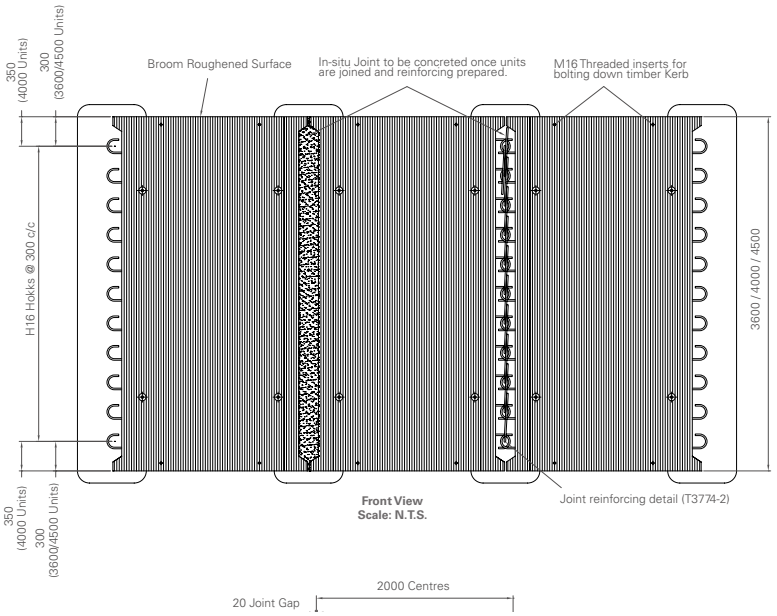
Product Code	Overall Width	Clearing Between Kerbs	Weight
DRIFTDECK3600	3600mm	3270mm	4600kg
DRIFTDECK4000	4000mm	3670mm	5200kg
DRIFTDECK4500	4500mm	4170mm	5800kg

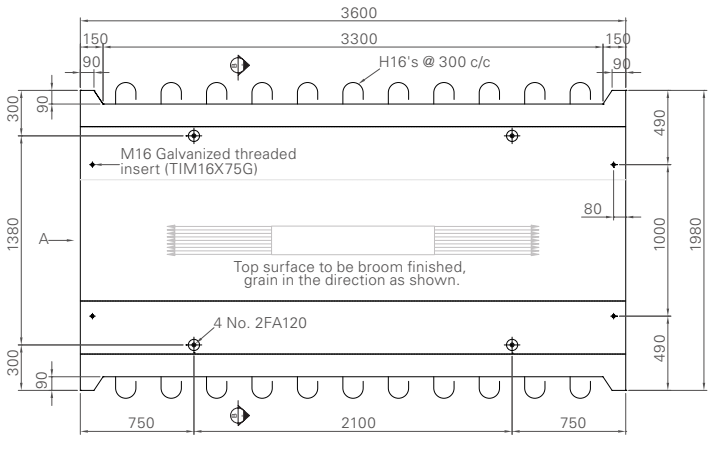


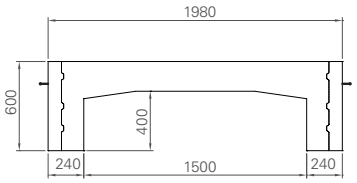


View On Arrow 'A'









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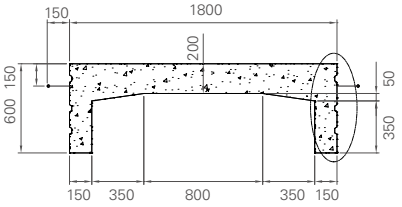
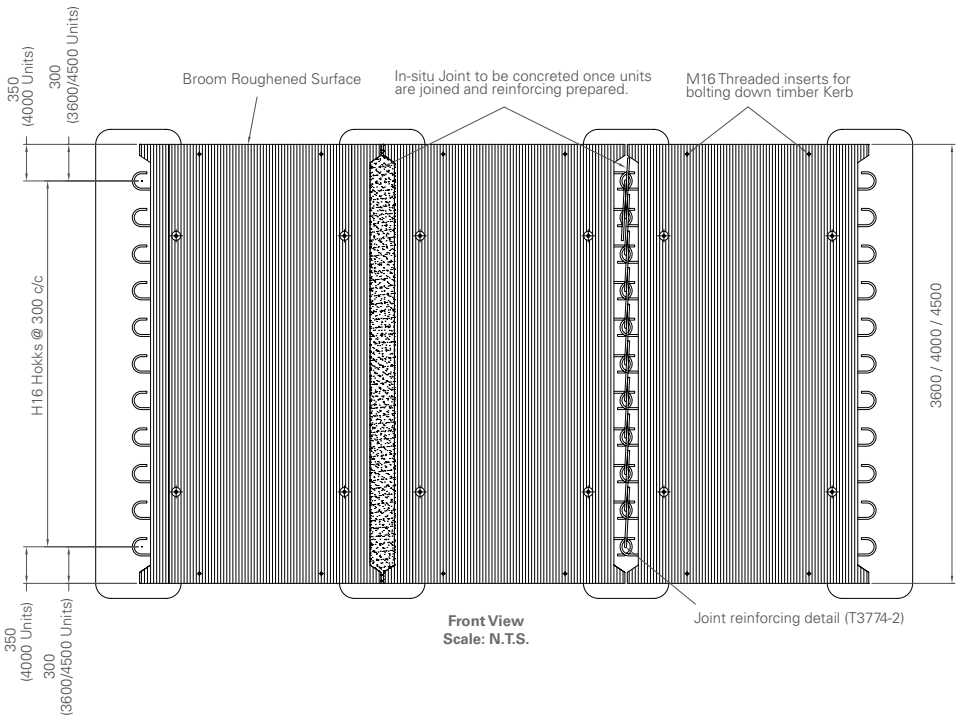
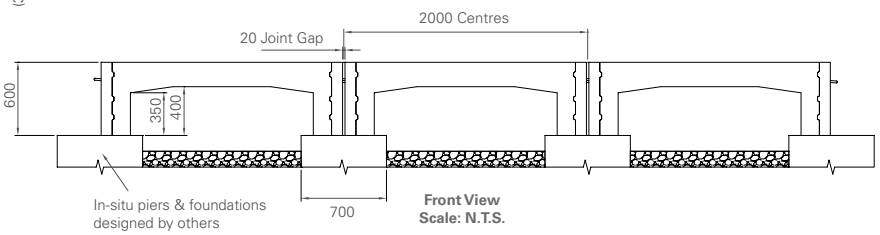




Front View
Scale: N.T.S.



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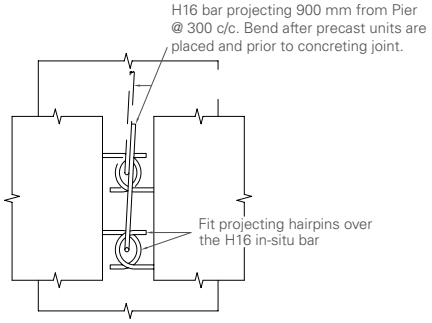
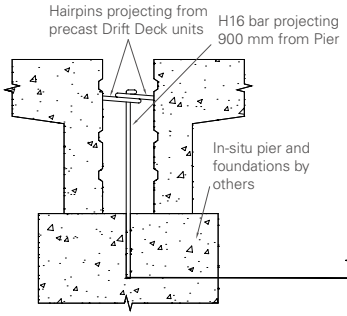
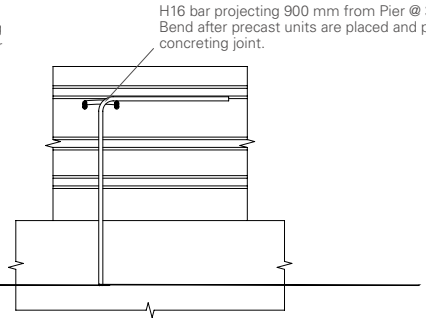


Joint Reinforcing Plan
Scale: NTS



Joint Reinforcing Detail
Scale: NTS



Joint Reinforcing Section
Scale: NTS

Lifting and Handling

All Hynds Driftdeck systems incorporate lifting anchors for safe lifting and must be used with the correct lifting clutch.

Hynds Pipe Systems has designed and manufactured Driftdeck systems with a minimum dynamic factor of 1.2. This dynamic factor requires that all the following conditions are observed when lifting, moving or placing the units:

1. Lifting with mobile plant *(such as an excavator or similar)* where equipment is specifically exempt from the requirements of the PECPR Regulations 1999, subject to the conditions outlined in the New Zealand Gazette, No. 104, September 2015 and
2. Lifting, travelling and placing over rough or uneven ground where anchor failure is not anticipated to cause harm or injury, by adopting procedures such as:
   a. Transporting the element as close as practical to ground level (300mm recommended)
   b. Establishing and maintaining exclusion zones
   c. Transporting only precast concrete elements that are unlikely to topple if they were to hit the ground
   d. Inspecting lifting anchors both after transportation and before final lifting into place
3. Hynds uses both Reids and Ancon lifting anchors which are both designed to *(Haeussler)* specifications and as such are compatible with Reid, Deha or Ancon anchors, clutches, and recess formers of the same load range.

Refer to "Safe work with precast concrete - Handling, transportation and erection of precast concrete elements" published by Worksafe New Zealand (October 2018)

Shock loads resulting from travelling with suspended Driftdeck systems over rough terrain and uneven ground may exceed design, dynamic and safety factors of the lifting systems. It is essential that care is taken during lifting and transporting as additional stresses could result in anchor failure.

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