

**Draft Detailed Design**

# Draft Detailed Design

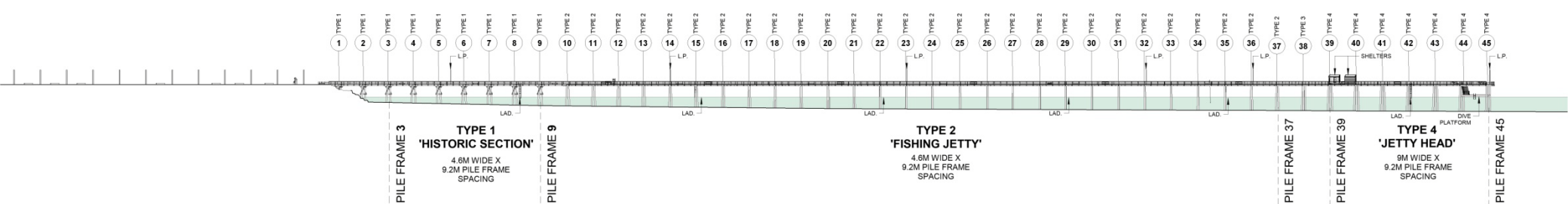
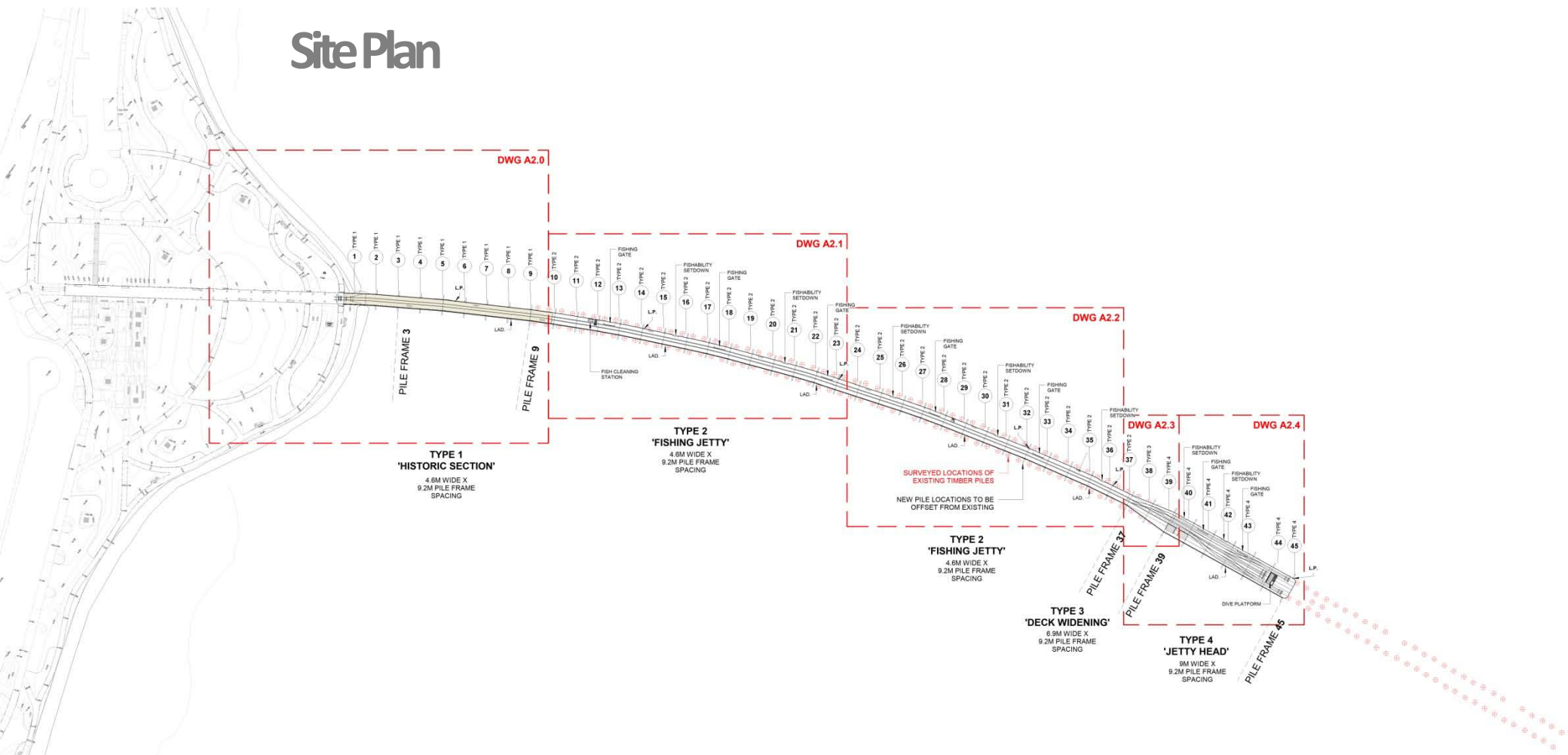
**The focus of this stage is to refine many of the architectural and engineering details before proceeding into tender documentation:**

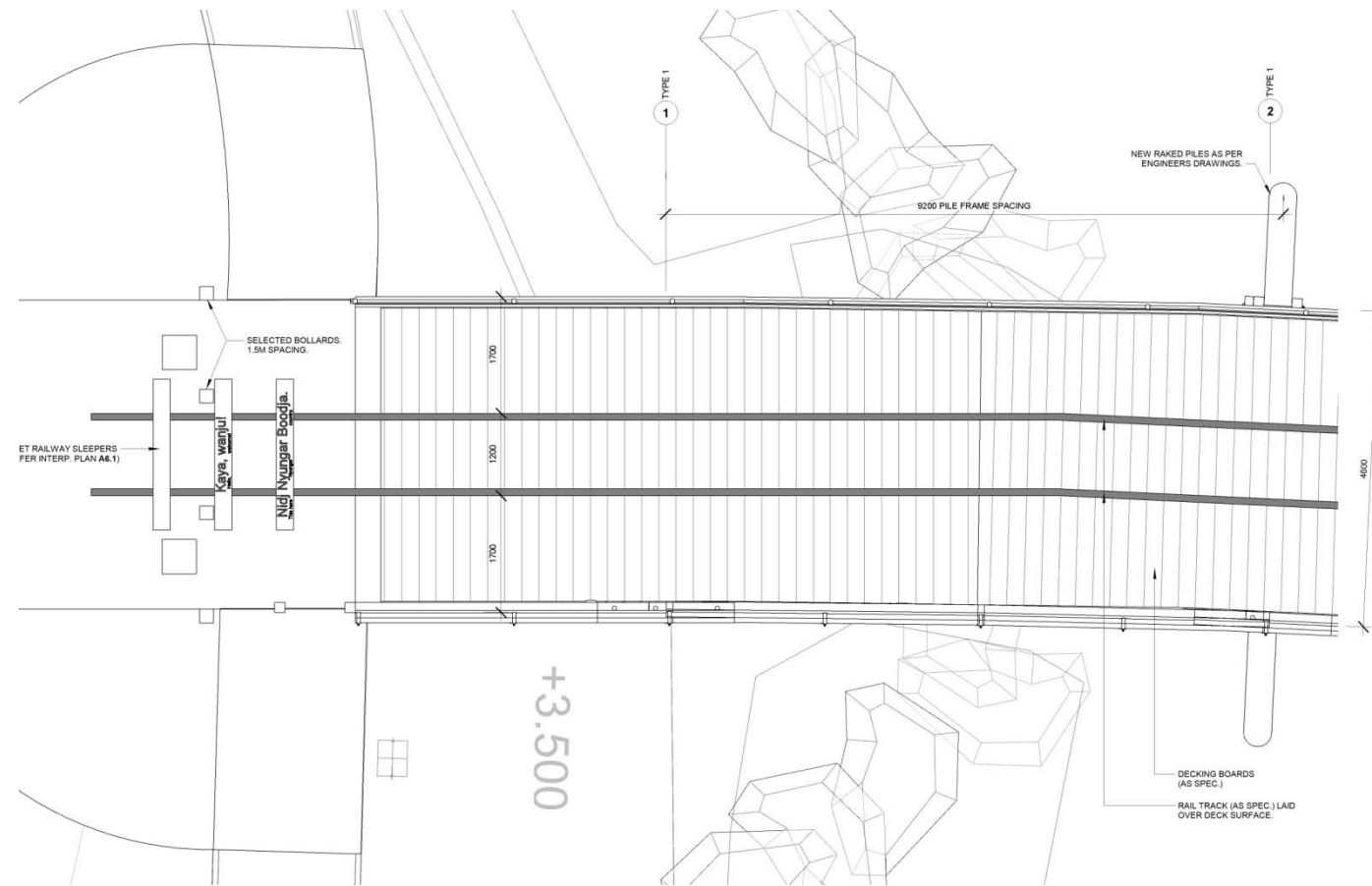
- Crossing of revetment – how the new jetty will bridge over the water from the headland to the first jetty bent
- Concrete deck design – layout of panels; repetitive design
- Timber deck design – planks, treatments
- Handrail and balustrade design for north and south sides of Jetty, including kerb rail
- Design of stairs, handrail and balustrade down to lower platform
- Design of jetty shelters
- Details of interpretative rail track to jetty deck
- Design of fishing gates and ‘fish-ability’ setdowns
- Design of interpretative elements that are functional to the jetty (bench seats)
- Extent of recycled material in fabric of jetty
- Development of additional interpretation nodes
- Lighting design options
- Rescue ladders and provision for life rings

**The next stage will focus on:**

- Confirmation of Corrosion protection
- Pile installation method
- Lighting selections
- Connection details and transition details between deck types

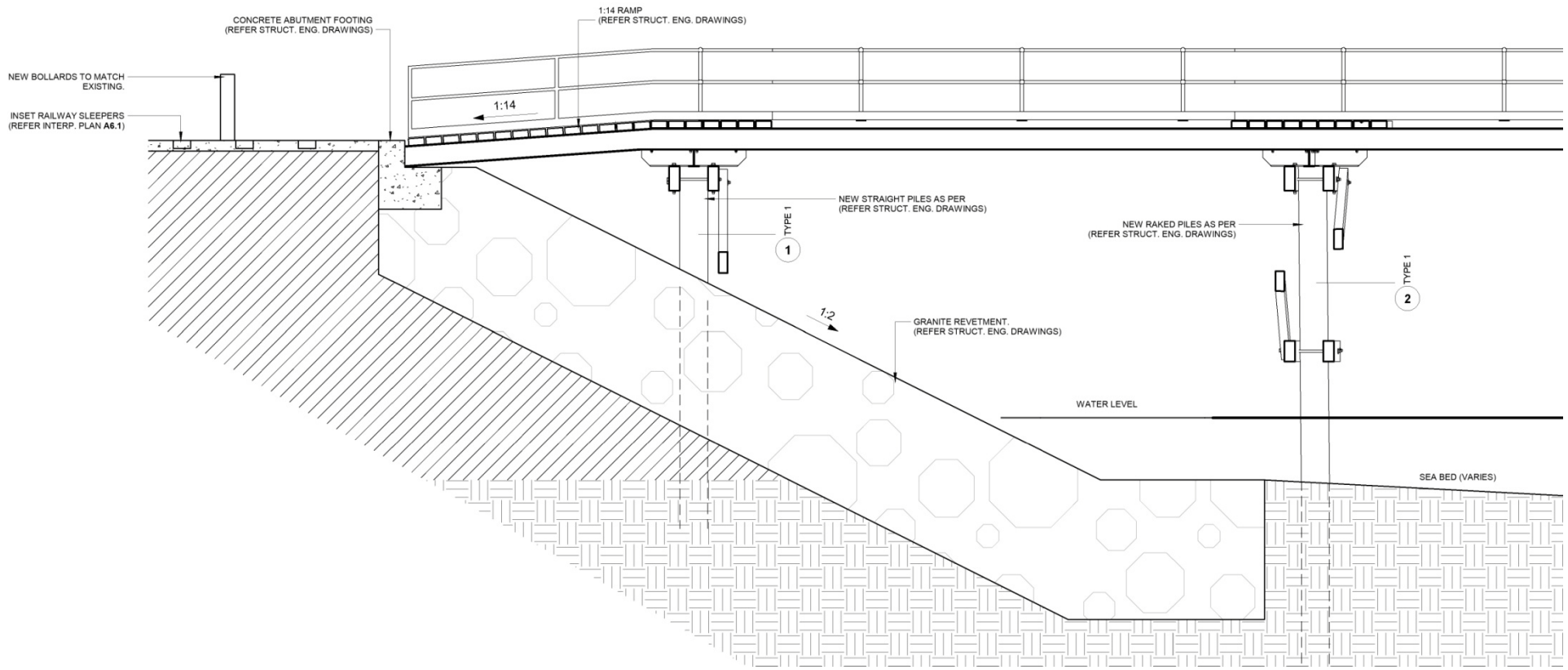
# Site Plan



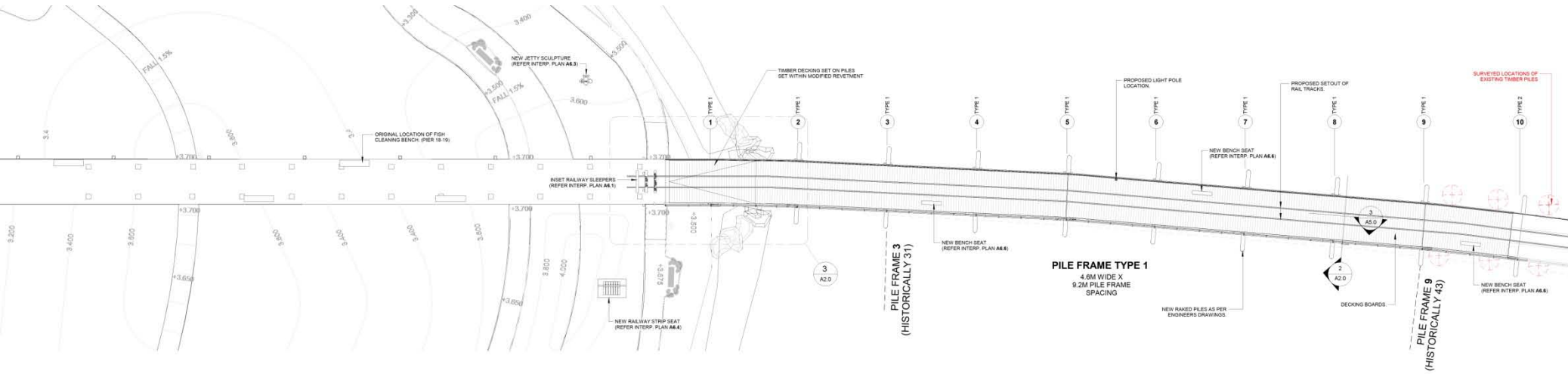


## Design considerations

- Piles have been placed to minimise the need to remove any rocks below the water line
- The land based pile bent will be straight driven behind the rocks. This may require removal of some of the crest rocks
- Straight pile is preferable as easier to drive through consolidated sediment
- Piles in this zone will need a HDPE sleeve to protect against damage due to rock movement
- There will be a concrete abutment footing for the landward side, straight pile for through the revetment and raked pile for after the revetment
- Intention is to have the seaward pile clear of the rock toe and the deck at the preferred height at that point

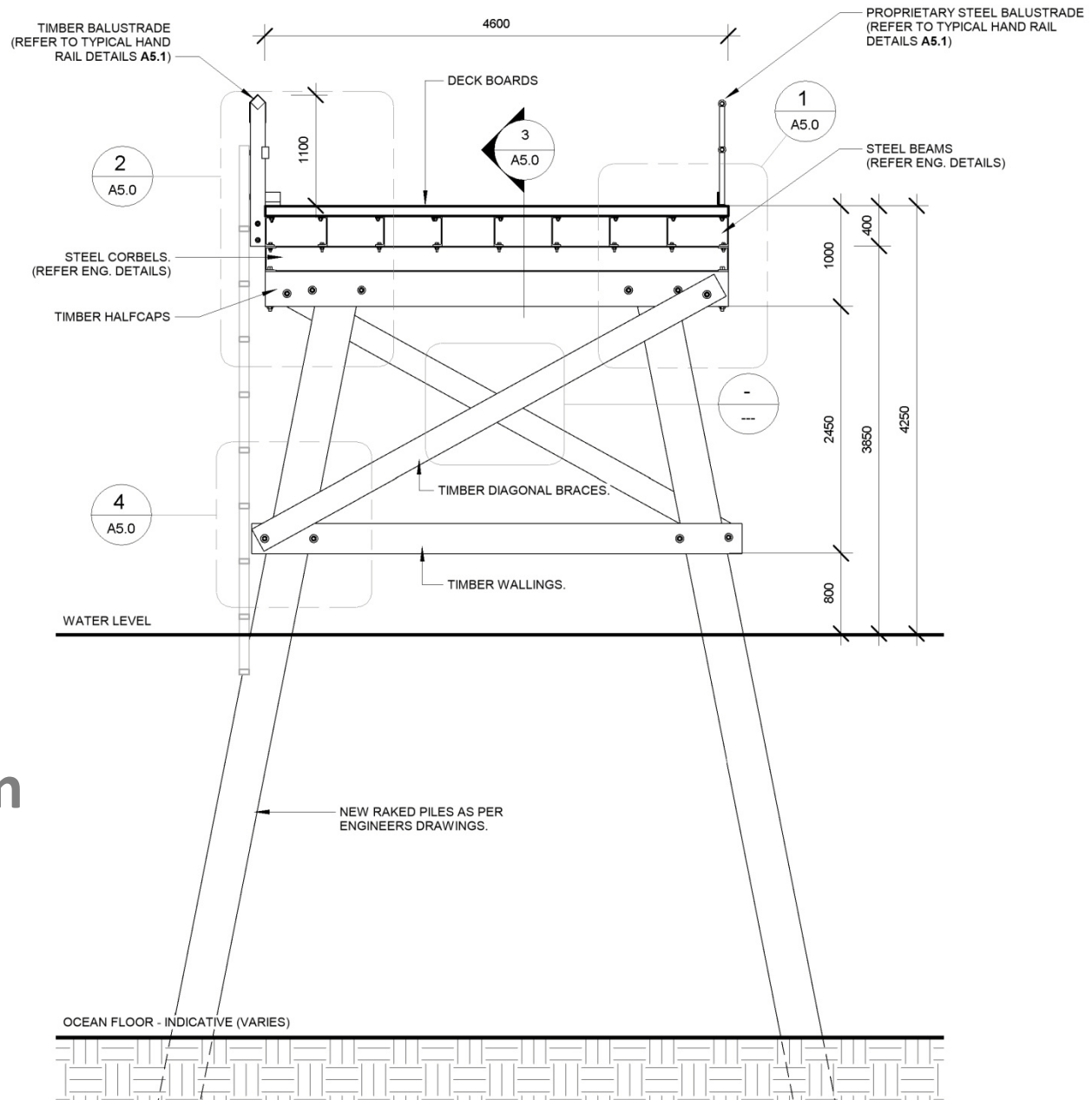


Revetment crossing

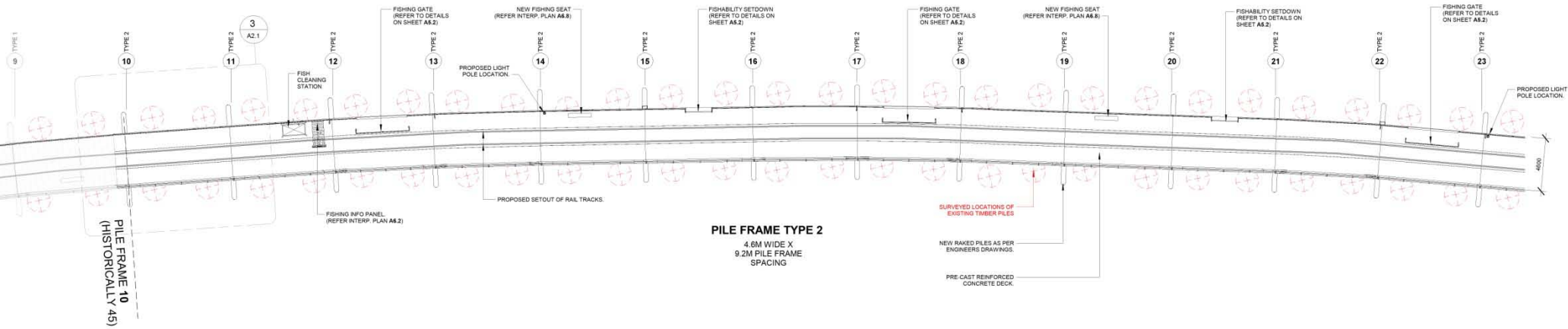


# Type 1 – Historic section





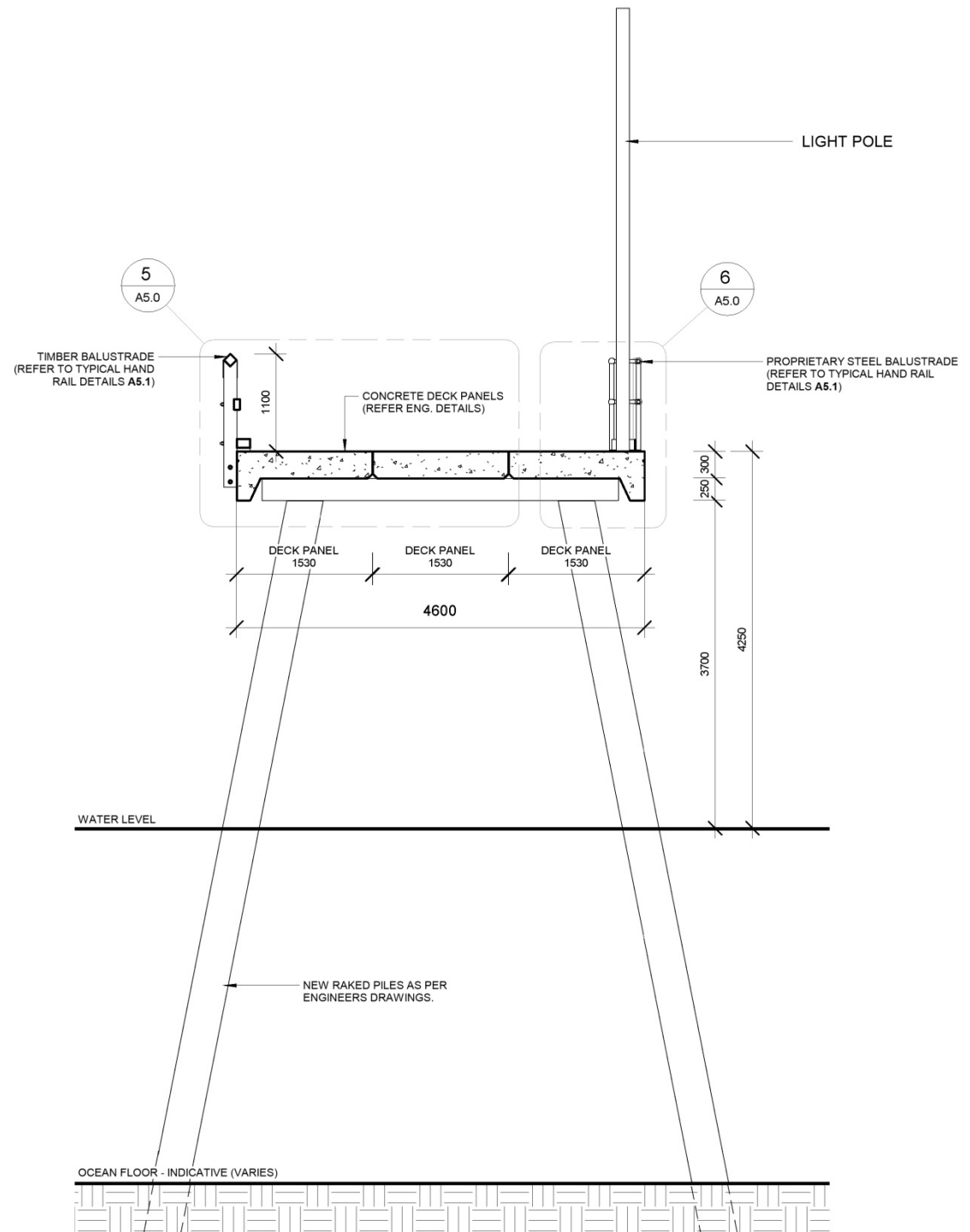
# Type 1 – Historic section

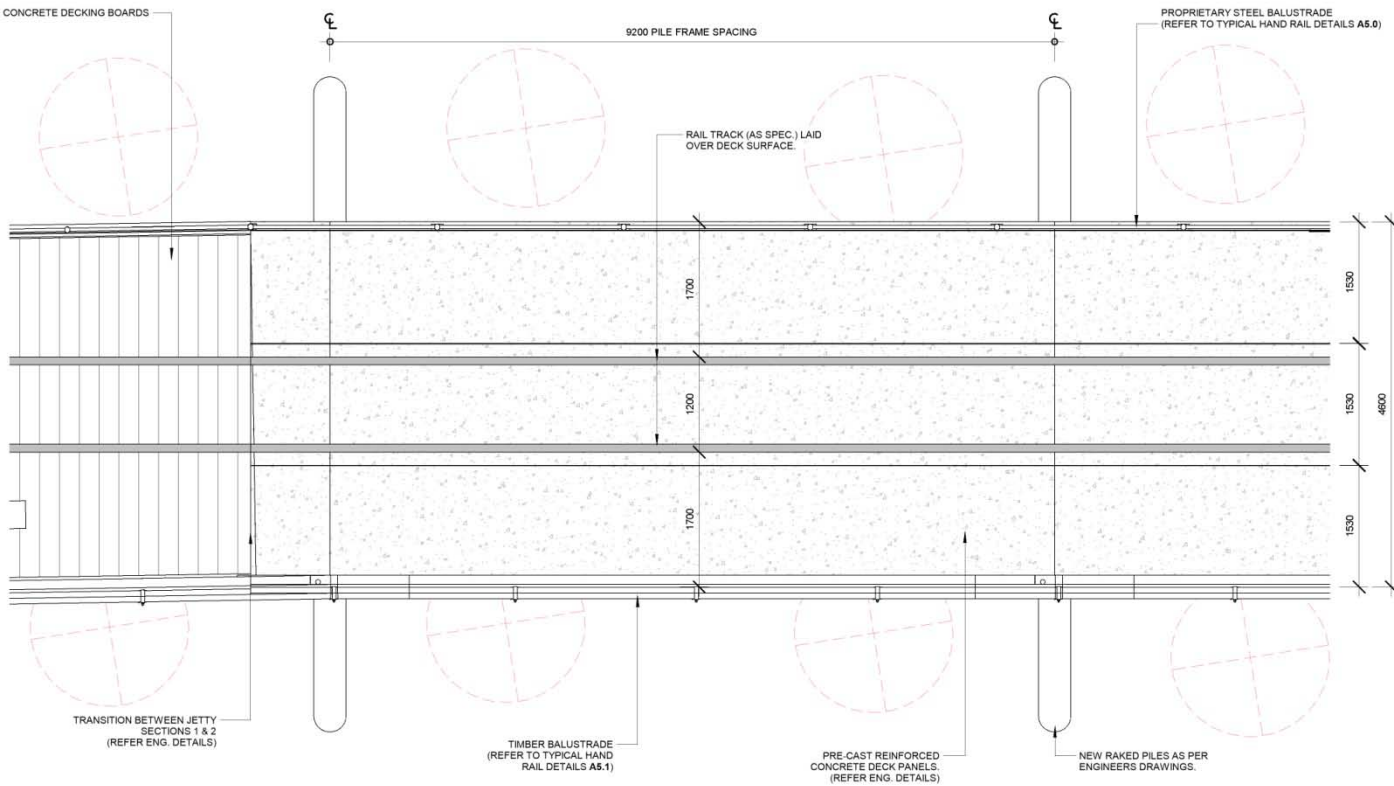


# Type 2 – Fishing Jetty



# Type 2 – Fishing Jetty



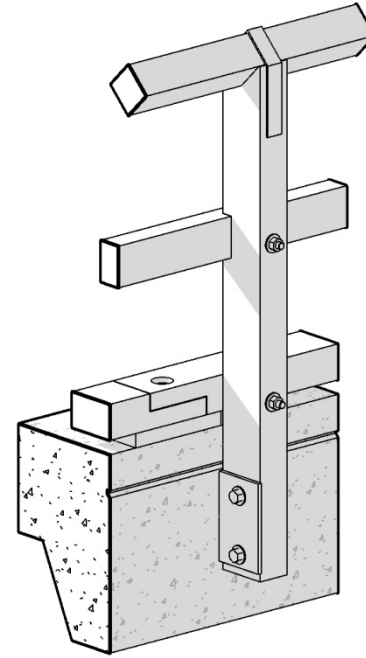
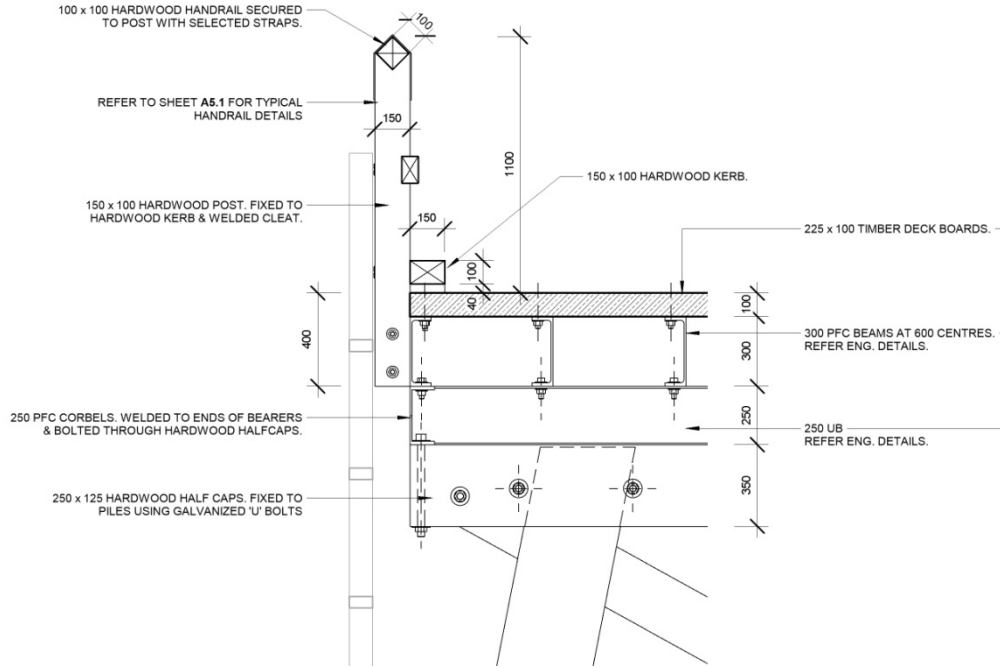


## Concrete panel layout

### Design considerations

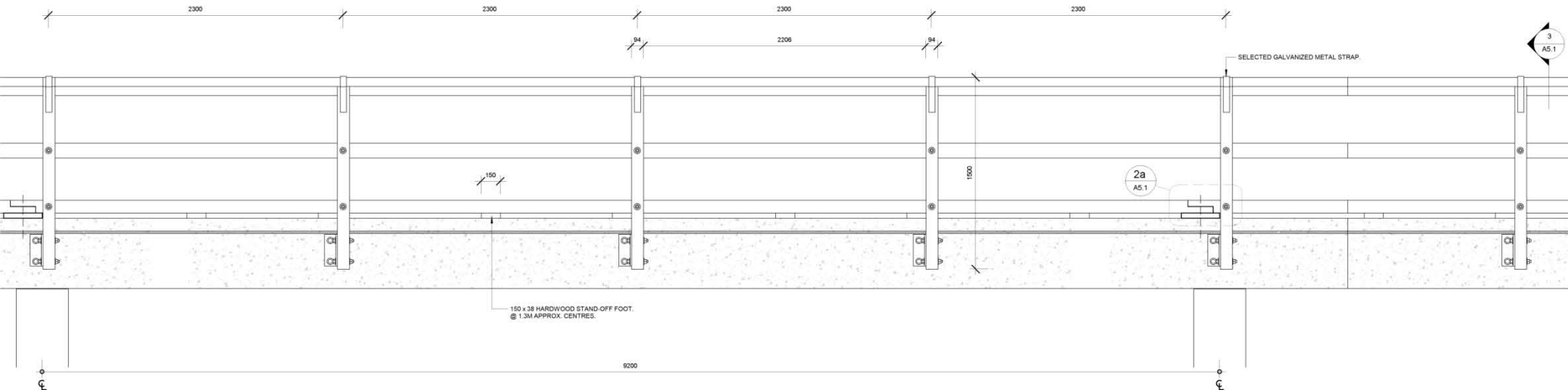
- Panel design has been standardised as much as possible, with straight panel sections and trapezoidal panels to articulate the curve
- Panels will be pre-fabricated to reduce risks associated with insitu construction
- Panels will have fixing points (typically four per panel) to allow for lifting and handling. These points will be infilled with grout once install is complete
- Joints between deck panels will be filled with a structural grout which assists with tying the structure together
- Panels will incorporate a camber to assist with surface drainage
- Consideration for rail track strips to be surface fixed rather than inlay into deck to allow for construction tolerances

# Balustrade details

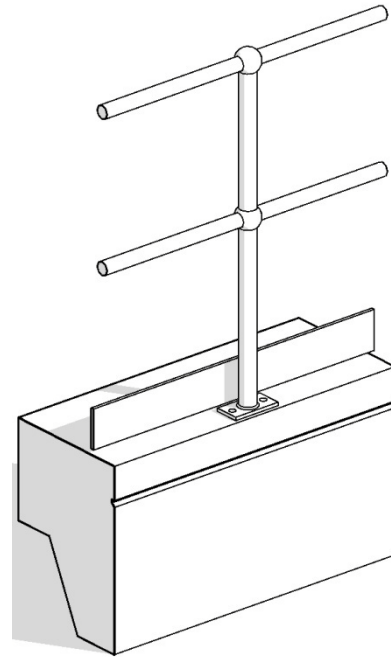
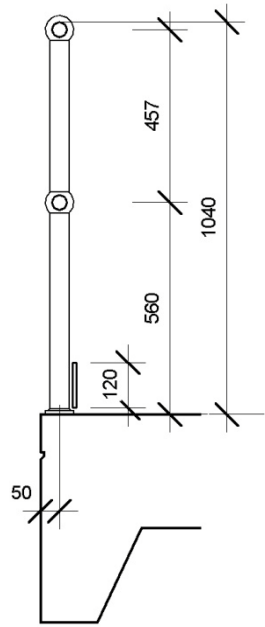


## Design considerations

- In general, safety fencing is not required on wharfs or jetties as it would hinder the normal operation of the structure, however AS4997 states that where access to the water or vessels is not required from the jetty, and where a person is likely to fall more than 1.5m to strike a hard surface or the seabed, a guard rail shall be provided.
- The proposed timber balustrade on the south side of the Jetty is compliant with the requirements for a guardrail under AS1657

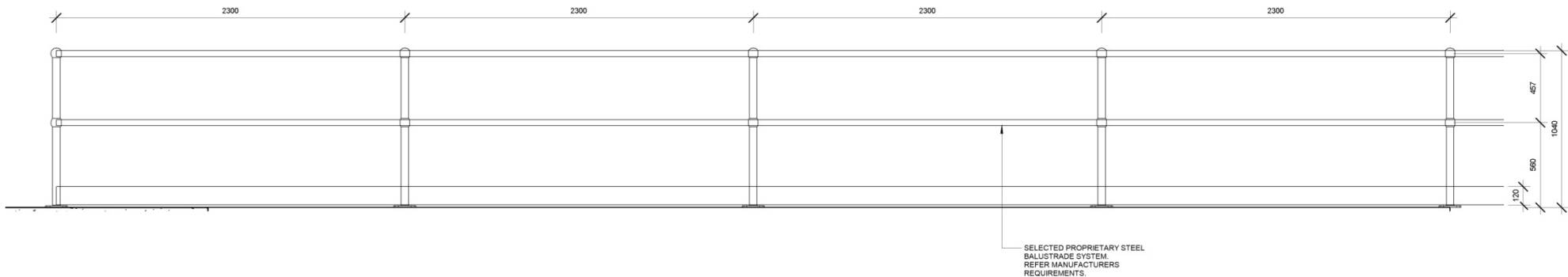


# Balustrade details

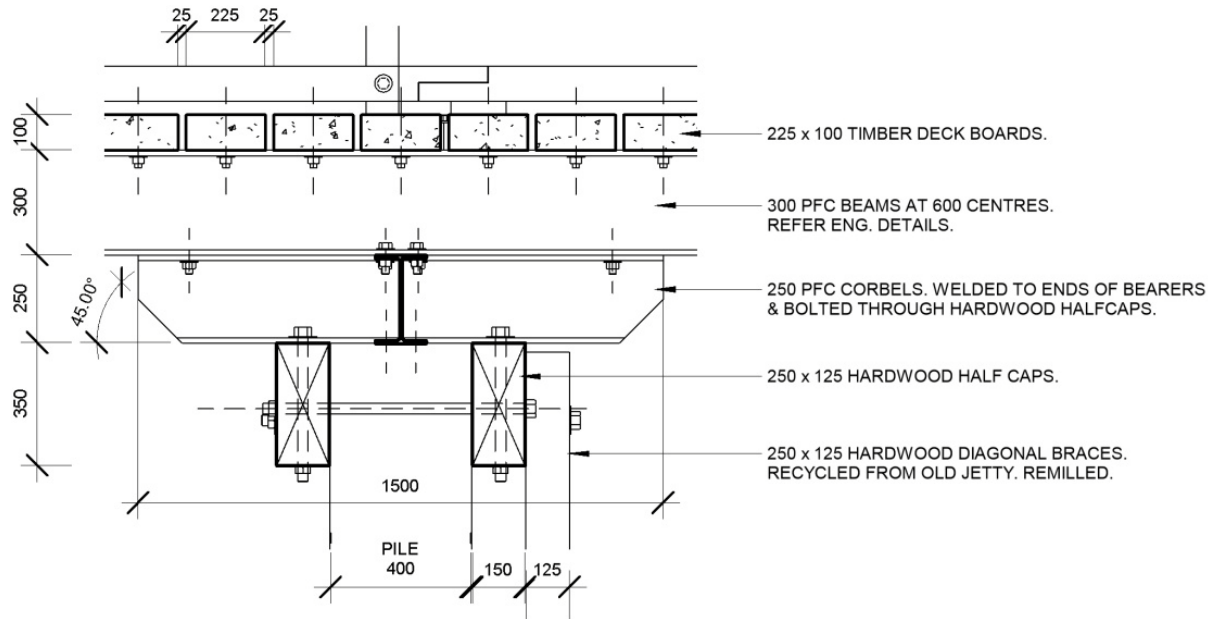


## Design considerations

- North side of Jetty will have proprietary steel balustrade which allows flexibility for fishing gates and fish-ability set-downs to be created. This balustrade will act as a general barrier, but is designed to be fishing-friendly, not a safety rail
- Spacing of vertical balusters will be even to match bent spacing.
- Steel balustrade will be suitable for future attachment of rod holders
- The steel balustrade curves continuously to form the barrier at the Jetty Head, wrapping around to connect to the timber balustrade on the south side



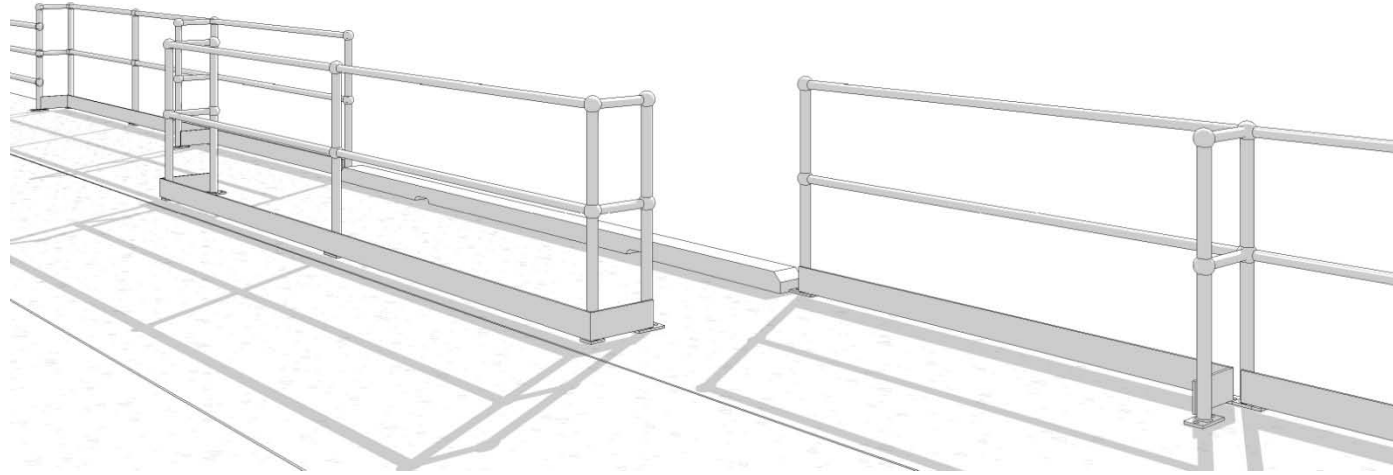
# Timber decking



## Design considerations

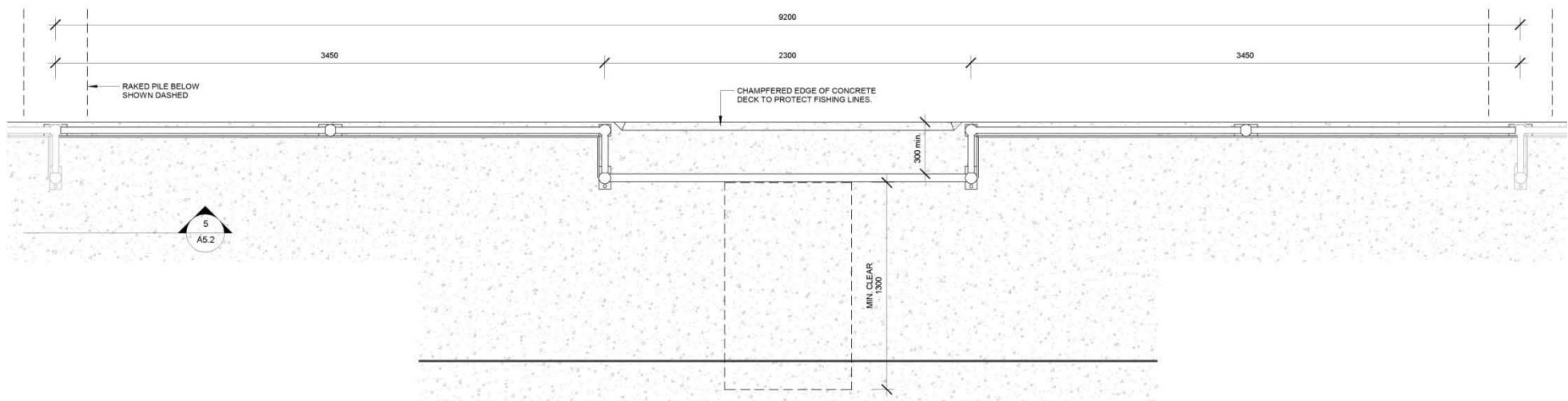
- AS4997 states that “Generally timber would not be used as the principal structural medium for a facility with a design life of greater than 25 years and decks classed above Class 10 (ie. Light vehicle load)
- In timber decking used for pedestrian access, it is necessary to ensure that trip hazards will not be caused by differences in plank thicknesses or warping due to drying
- To reduce trip hazards, decking timbers should generally be machined on the underside to uniform thickness. The top side should be rough sawn to reduce slip hazard when wet.
- Deck planks should be ‘back sawn’ sections and laid with the timber’s ‘heart’ side as the underside of the deck
- Timber can be treated to protect it from environmental deterioration, including paint, epoxy coatings, preservative treatments or protective wrapping
- Where a structure is installed adjacent to sensitive fishing grounds, chemically treated timber should not be used.

# Fishing gates

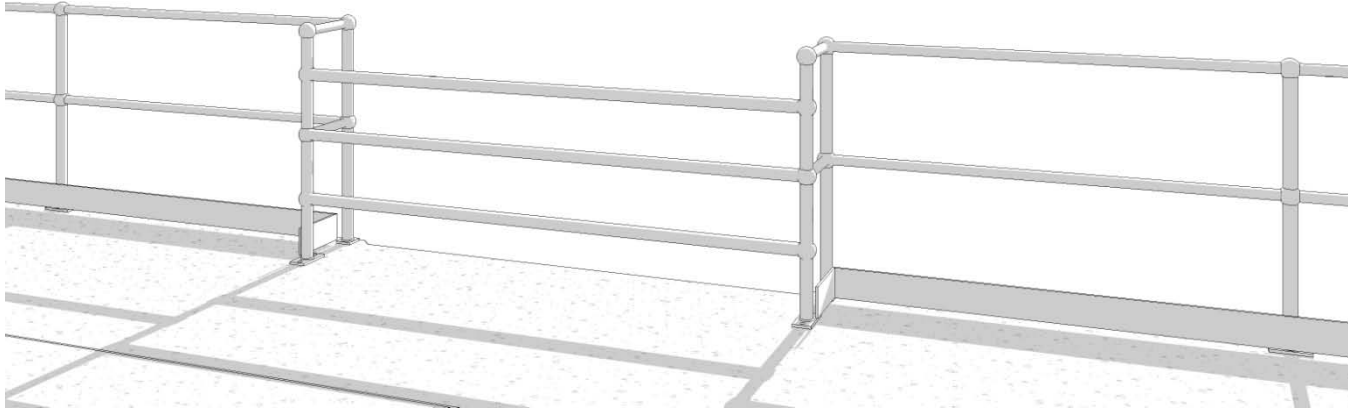


## Design considerations

- Steel Balustrade is set back from edge to create fishing gates on north side of Jetty
- Fishing gates are located on the Type 2 Jetty section (not historic section) and distributed every 50m approximately, starting near the fish cleaning bench
- There are two fishing gates on the north side of the Jetty Head

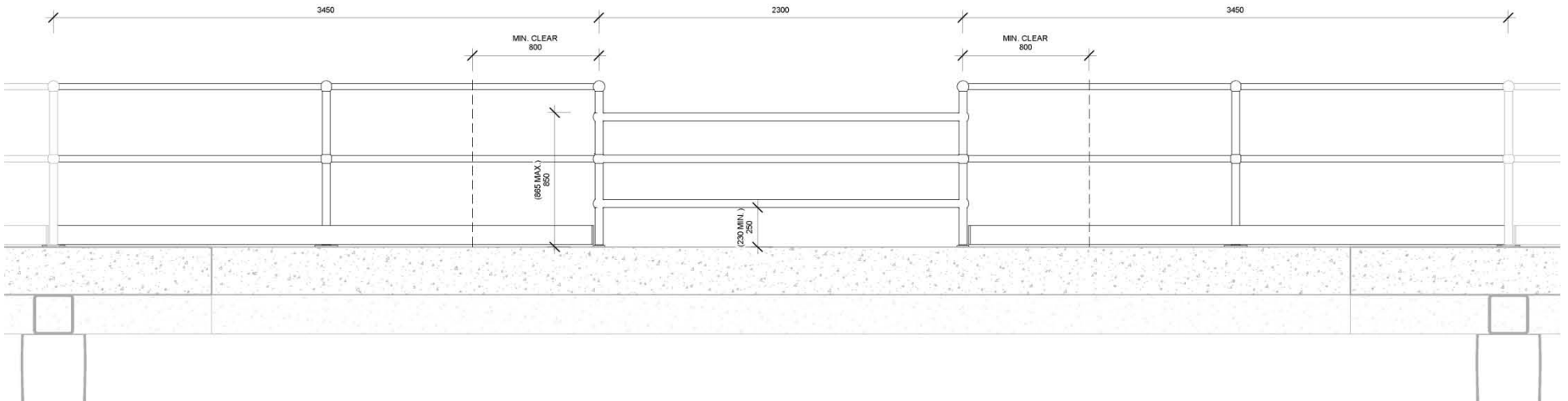


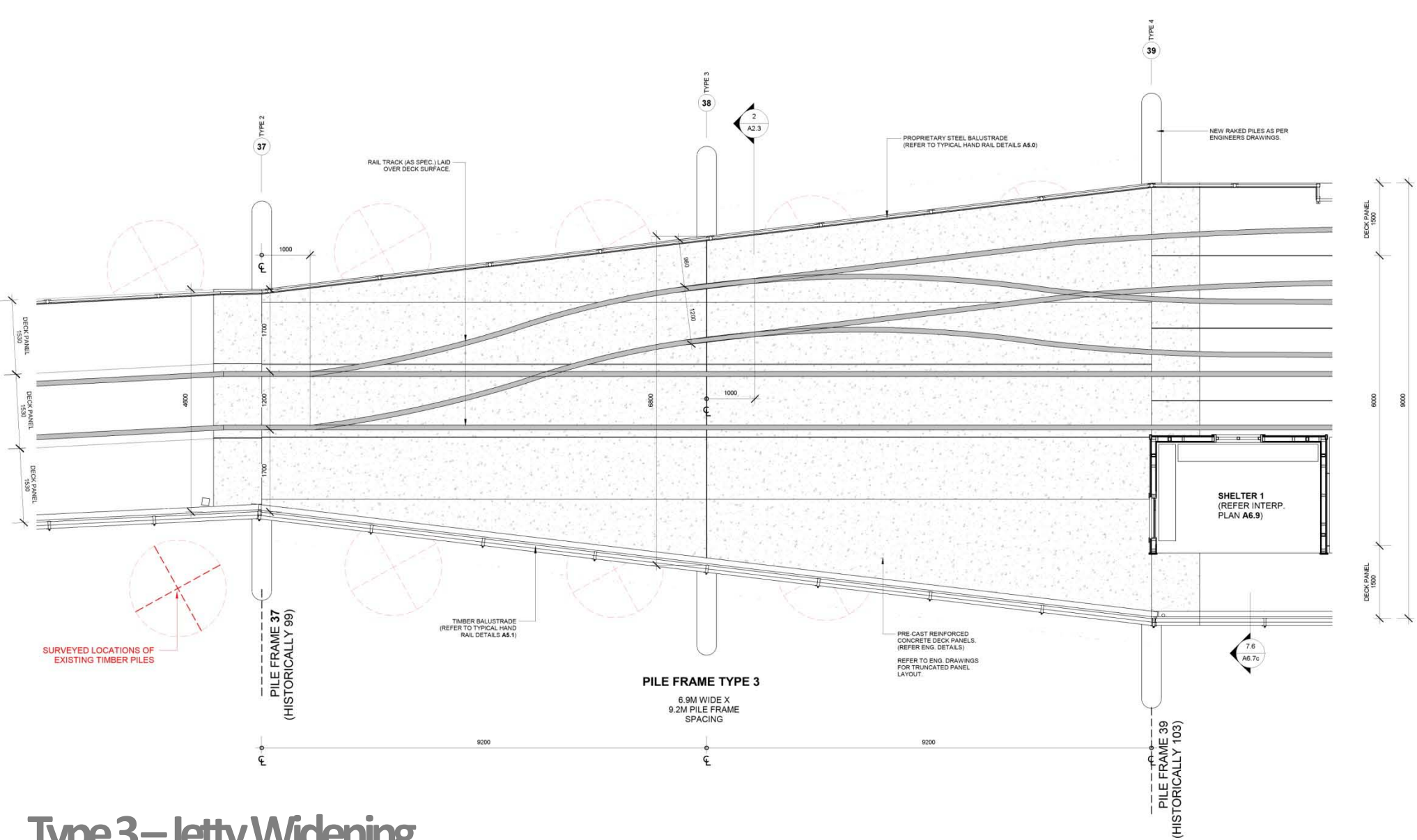
# Fish-ability set downs



## Design considerations

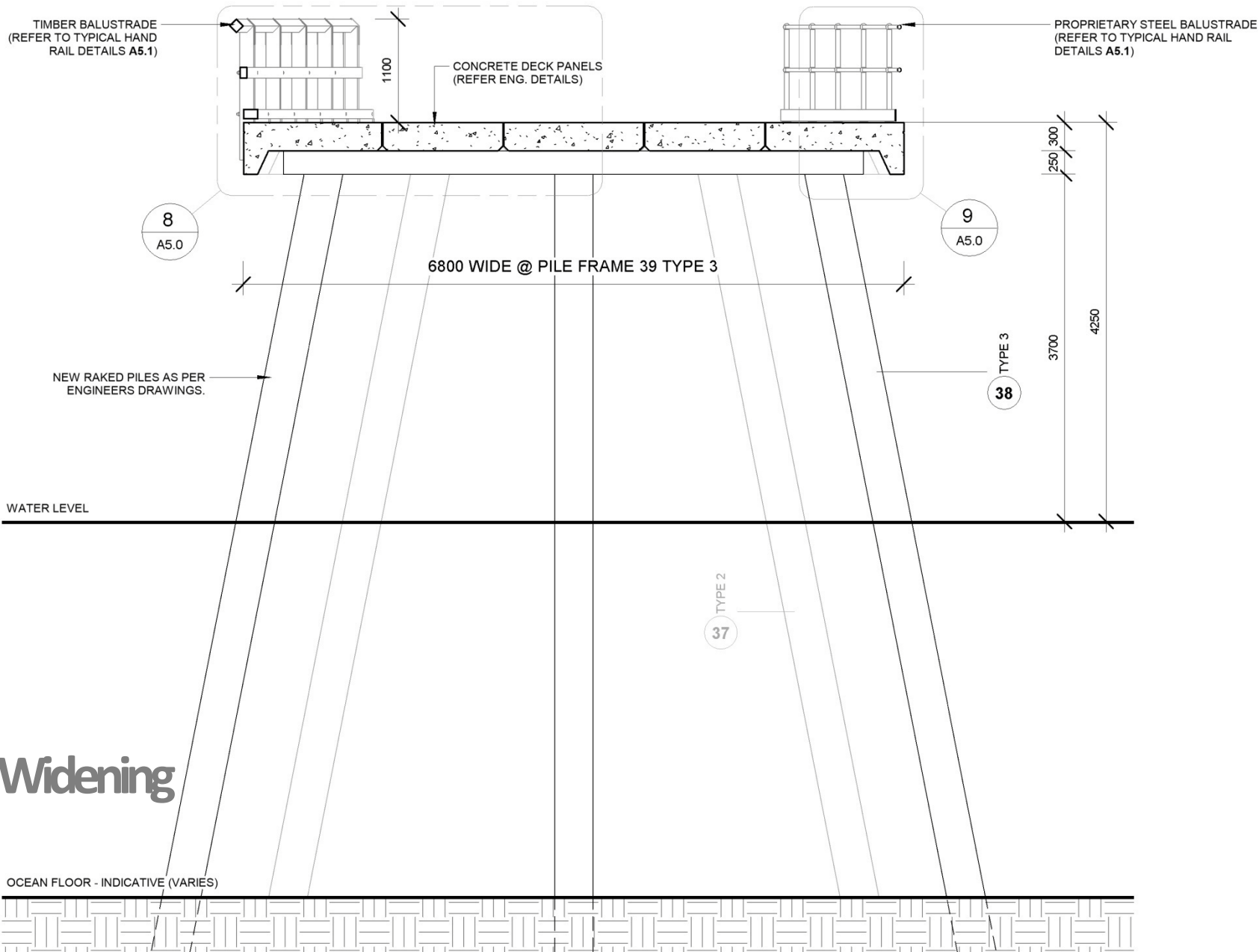
- Fish-ability set-downs have been created along the north side of the Jetty to allow people in wheelchairs or mobility scooters to safely and easily fish off the Jetty
- Fish-ability setdowns are located on the Type 2 Jetty section (not historic section) and distributed every 50m approximately, starting near the fish cleaning bench
- There are two fish-ability setdowns on the north side of the Jetty Head



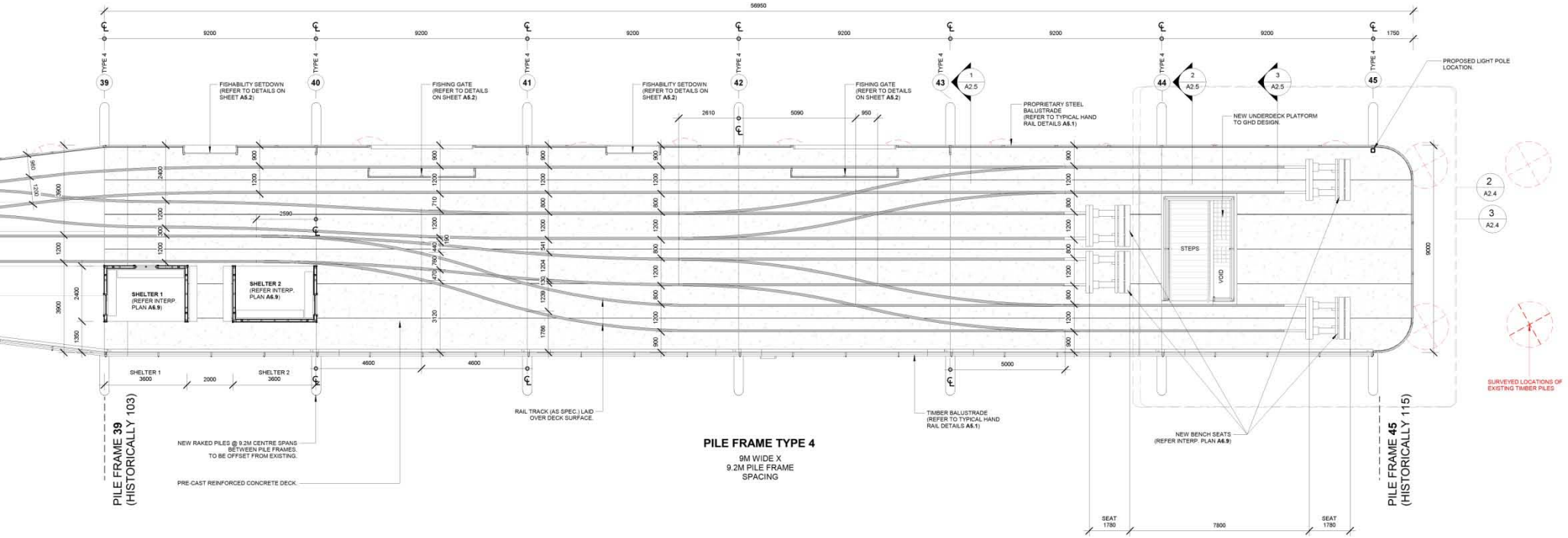


# Type 3—Jetty Widening

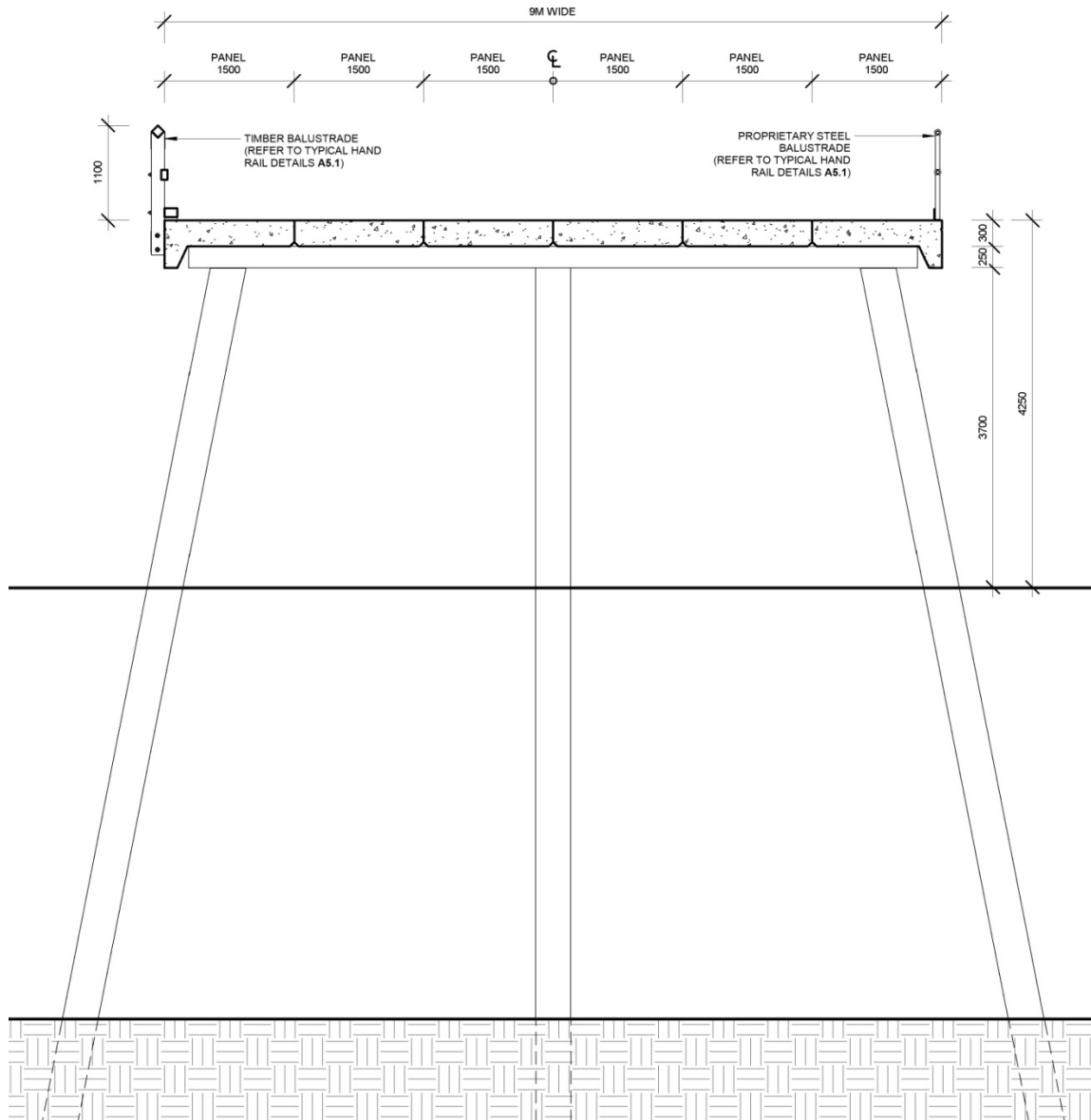




# Type 3—Jetty Widening

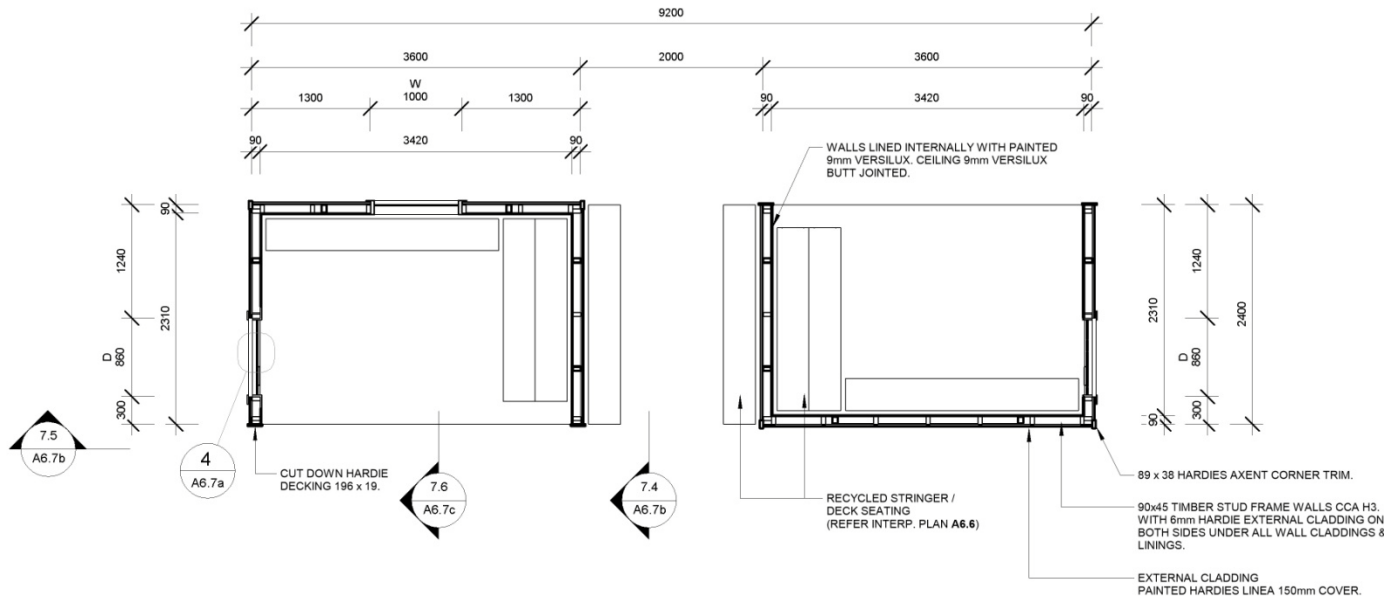


# Type 4 – Jetty Head



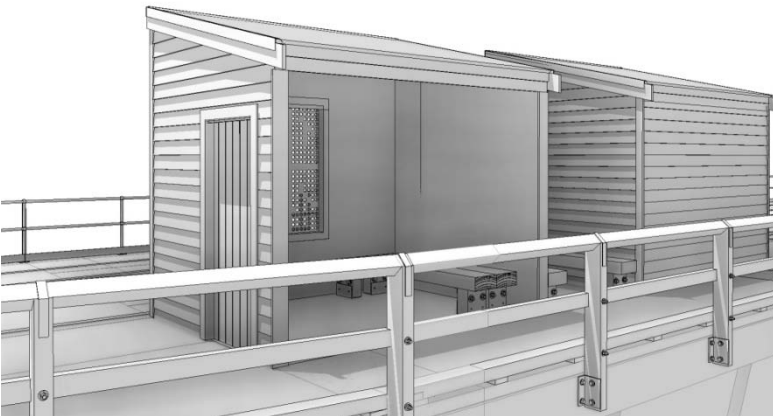
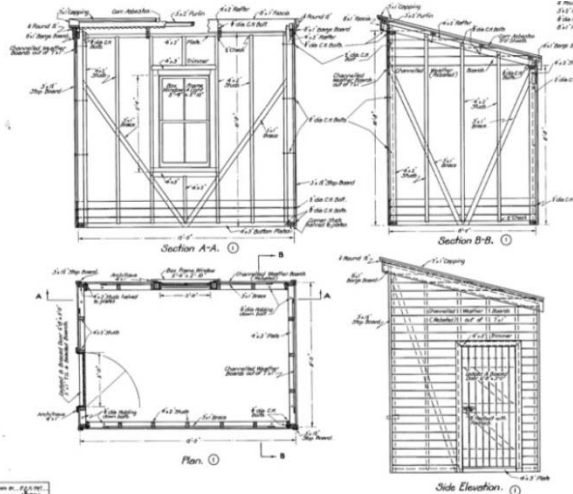
Type 4—Jetty Head

# Jetty shelters

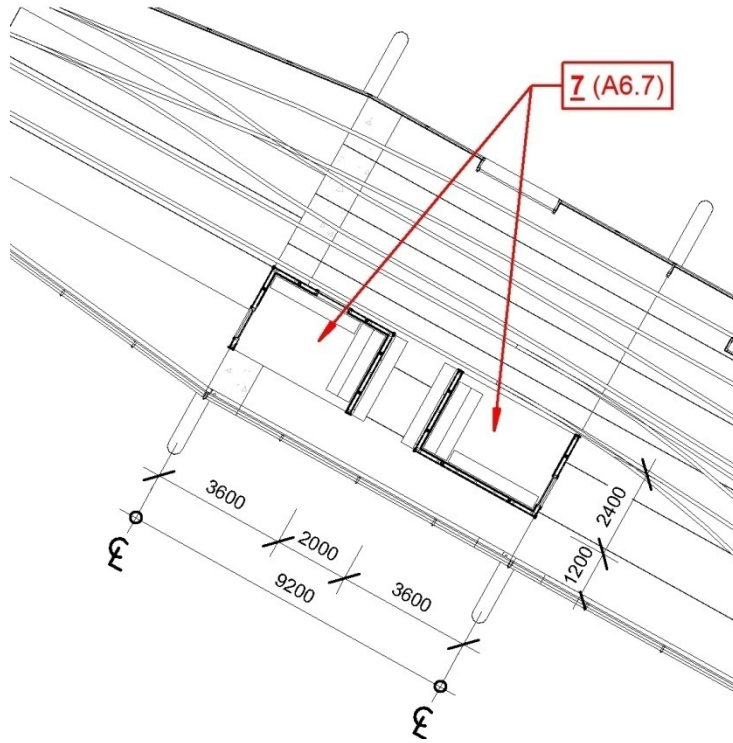


## Design considerations

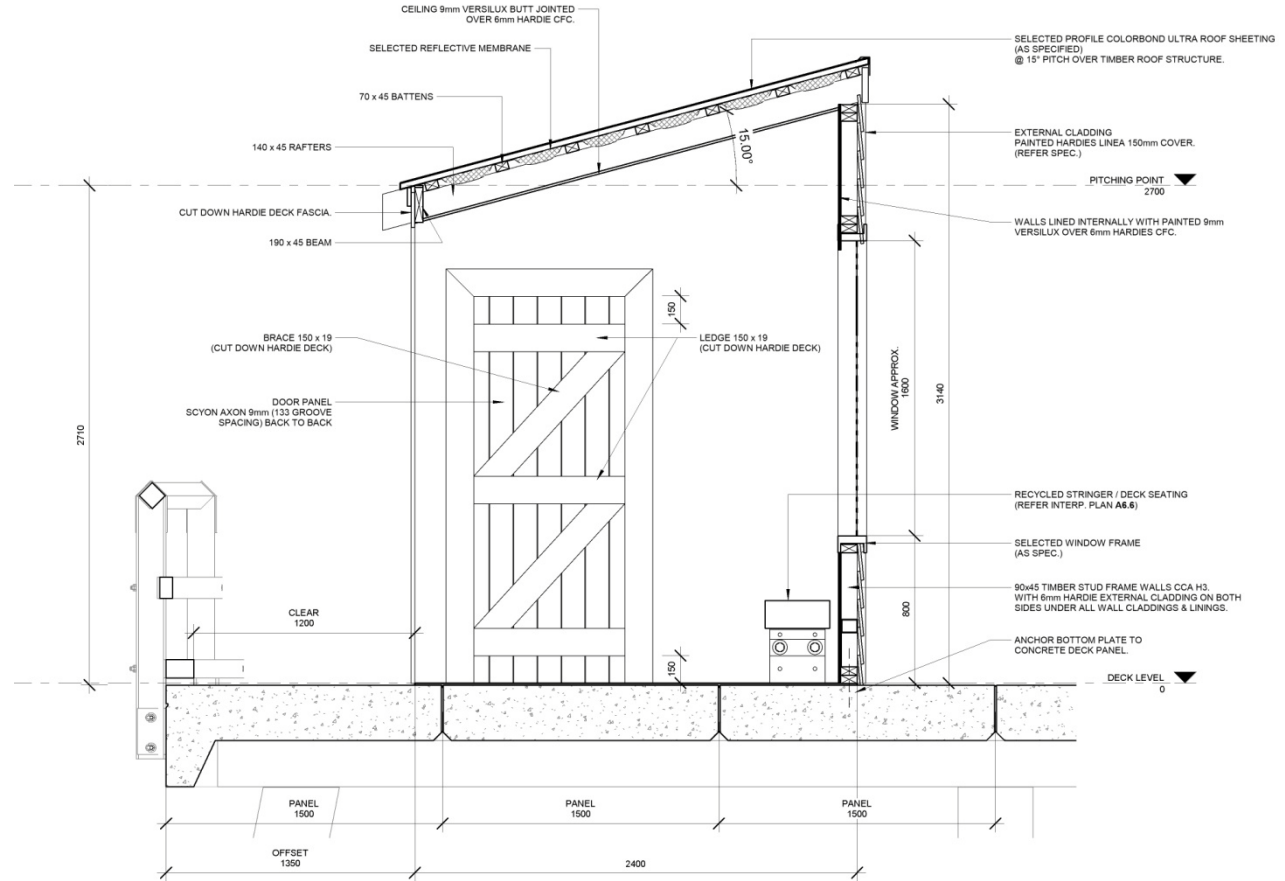
- Two Jetty Shelters are located on the Jetty Head, facing opposite ways to offer protection from different weather conditions
- The shelter design is based on the modest and utilitarian storage sheds once located at the head of the Tanker Jetty
- The shelters will be timber-framed but fully lined internally and externally to provide fire-protection and durability
- The doors and windows are not operable, but reconstruct some of the original details of the shelter shed
- Benches made of recycled jetty timber will be located inside and outside the shelters
- The interior of the shelters will provide space for interpretation panels relating to the history of the Jetty



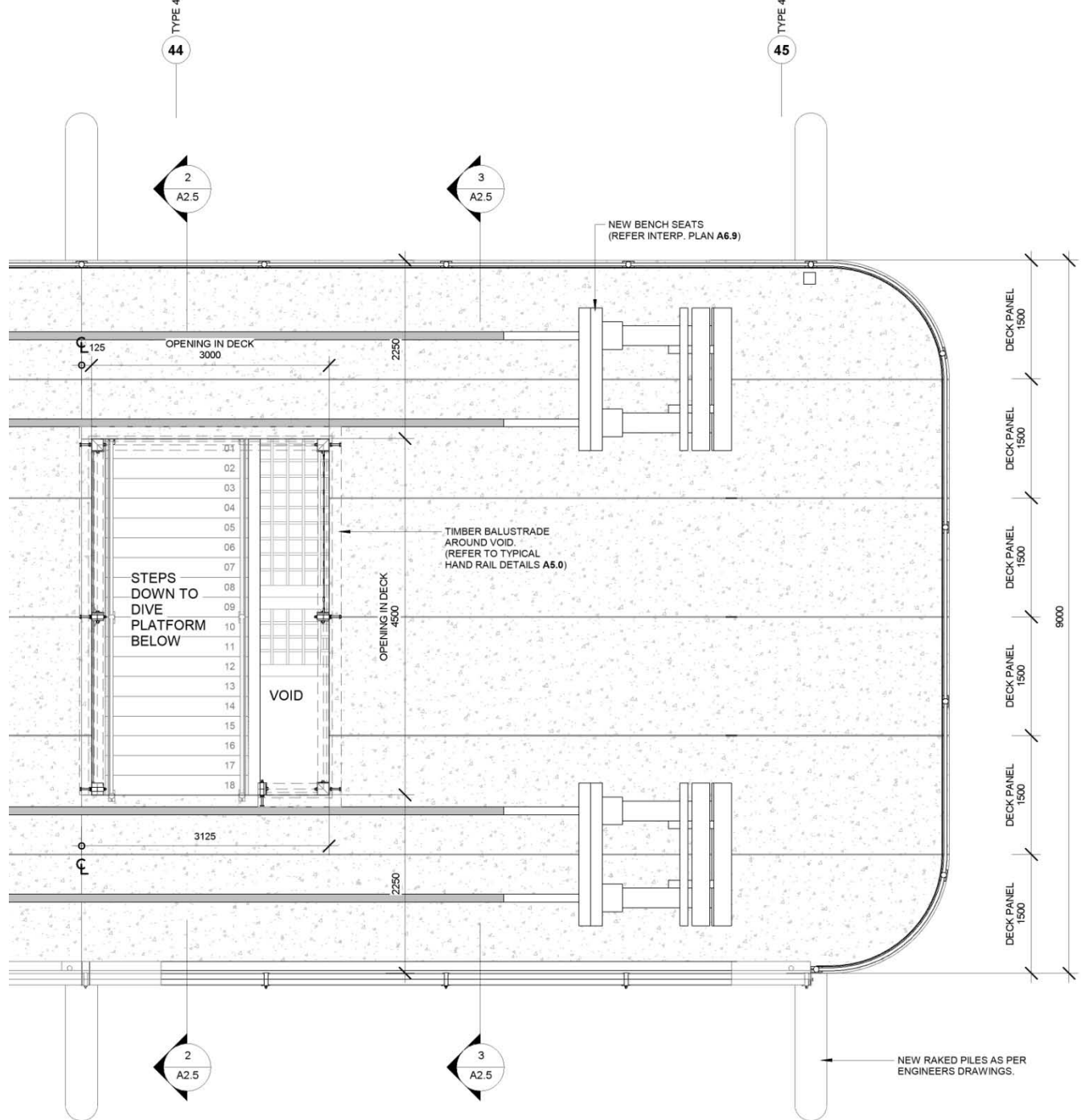
# Jetty shelters



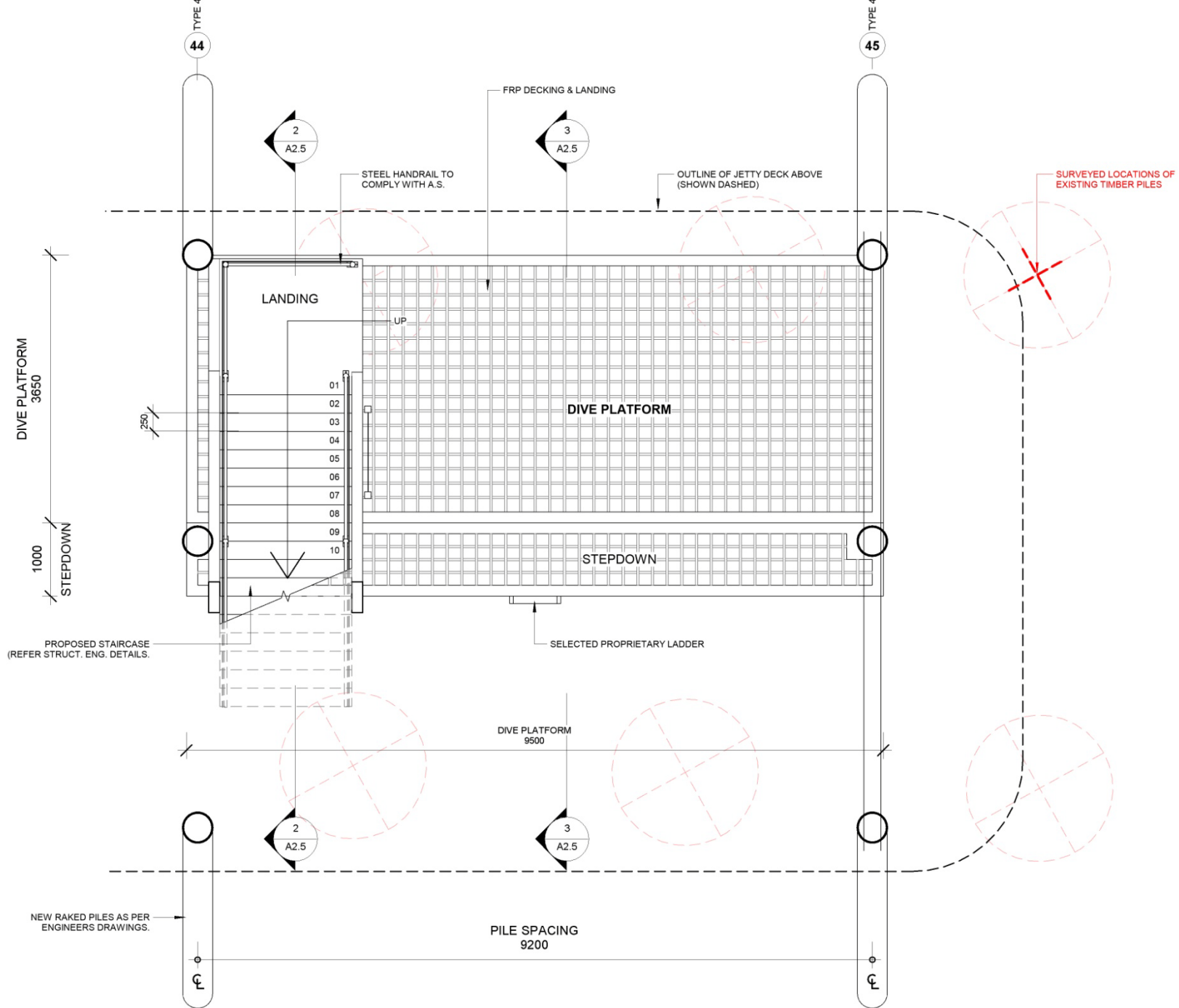
Interpretation Node #8

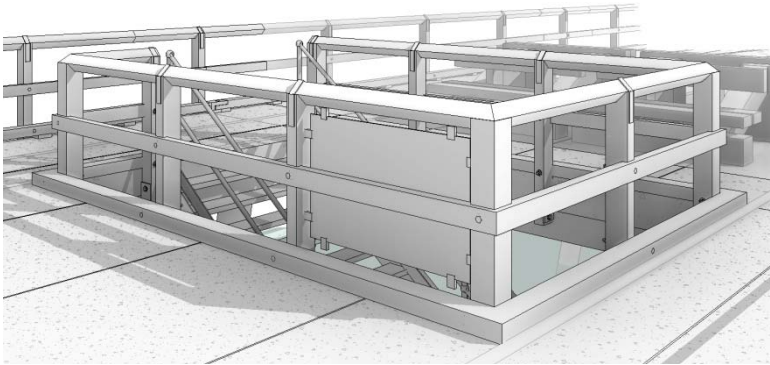
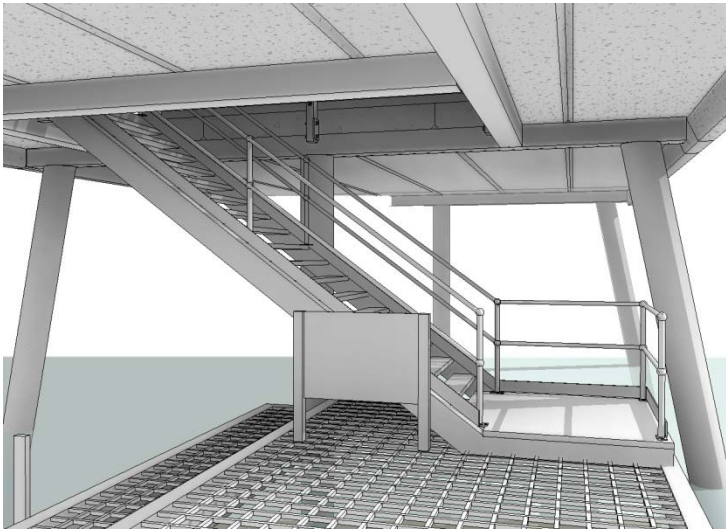


# Type 4—Jetty Head

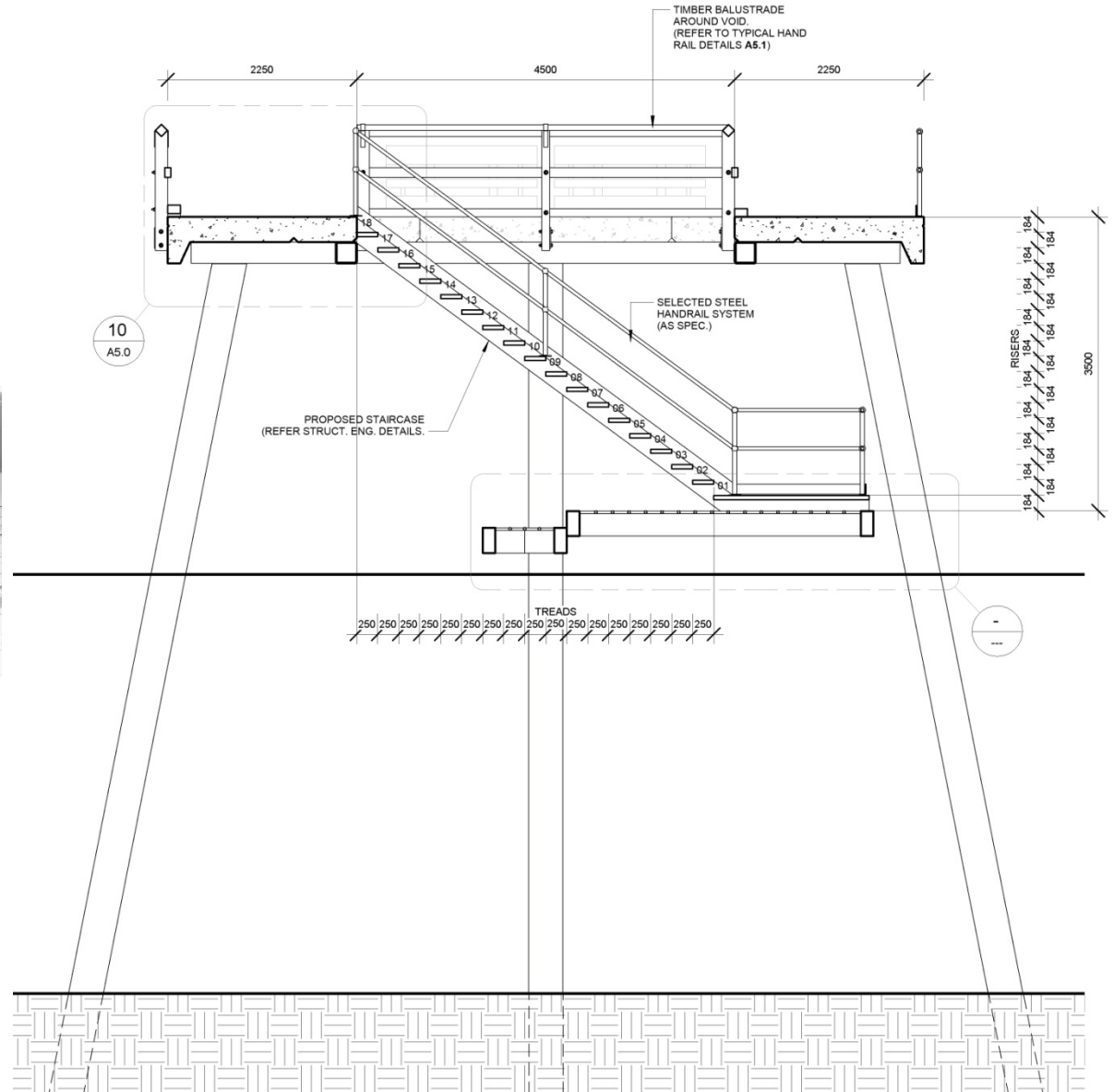


# Lower Platform

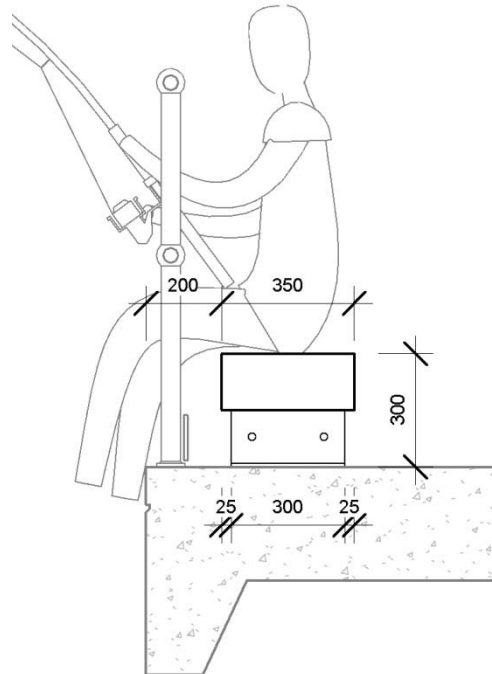
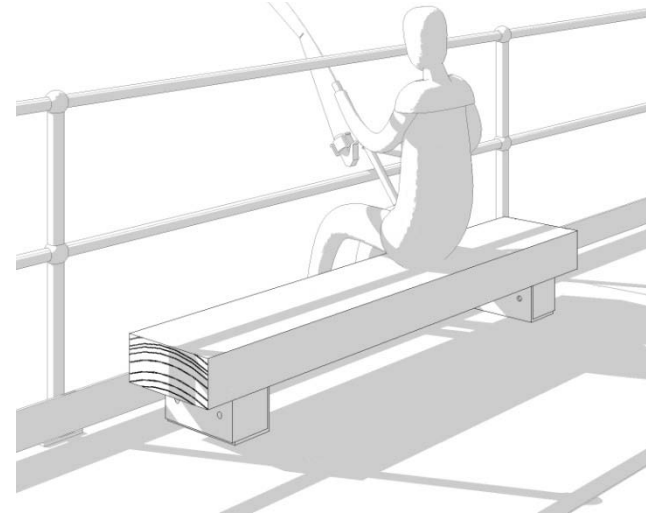
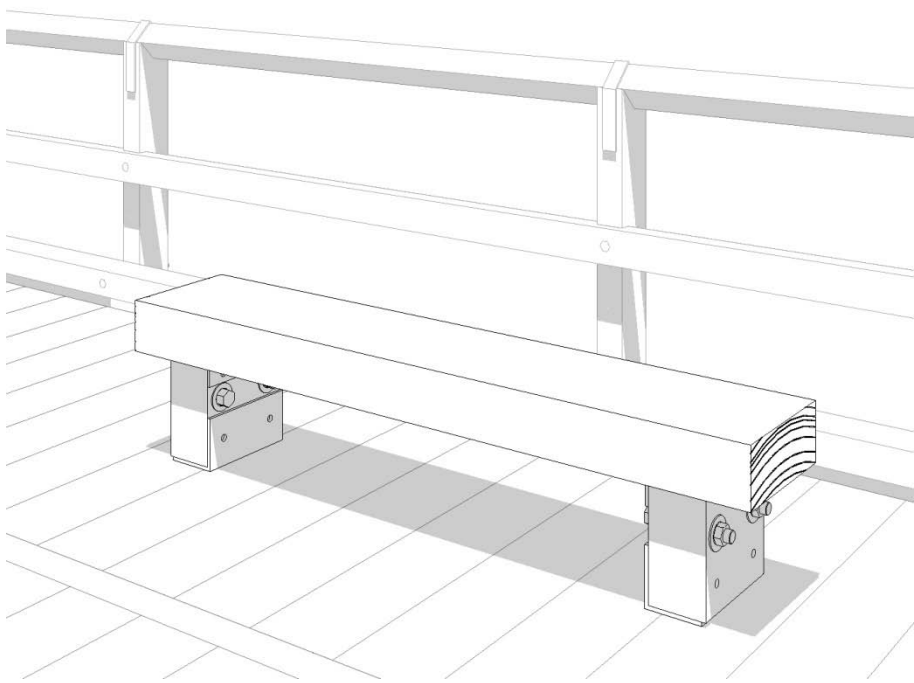




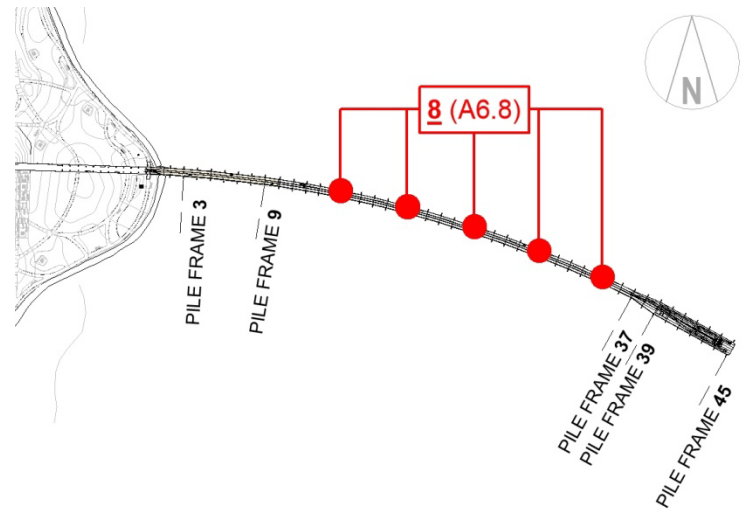
# Lower Platform

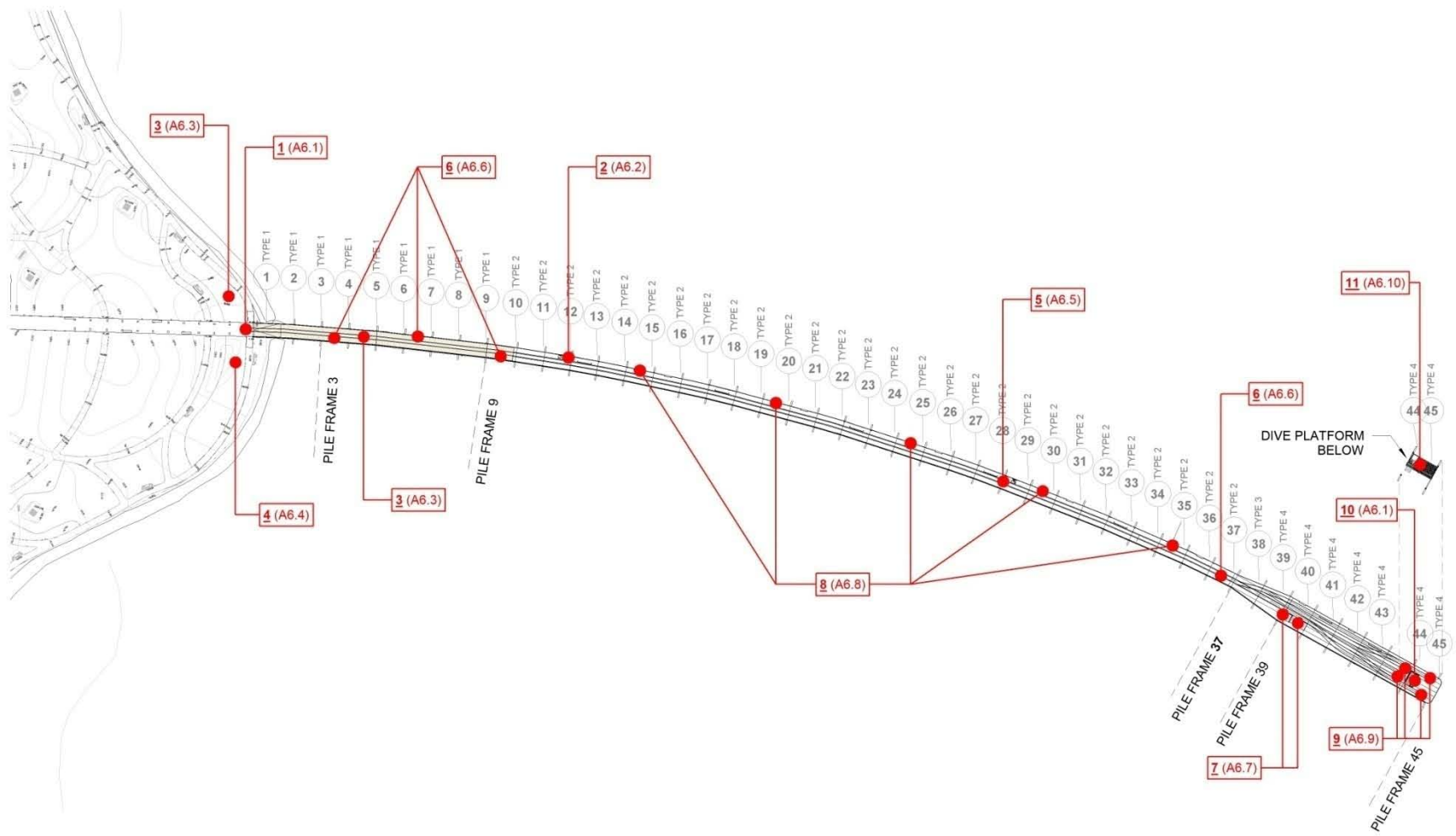




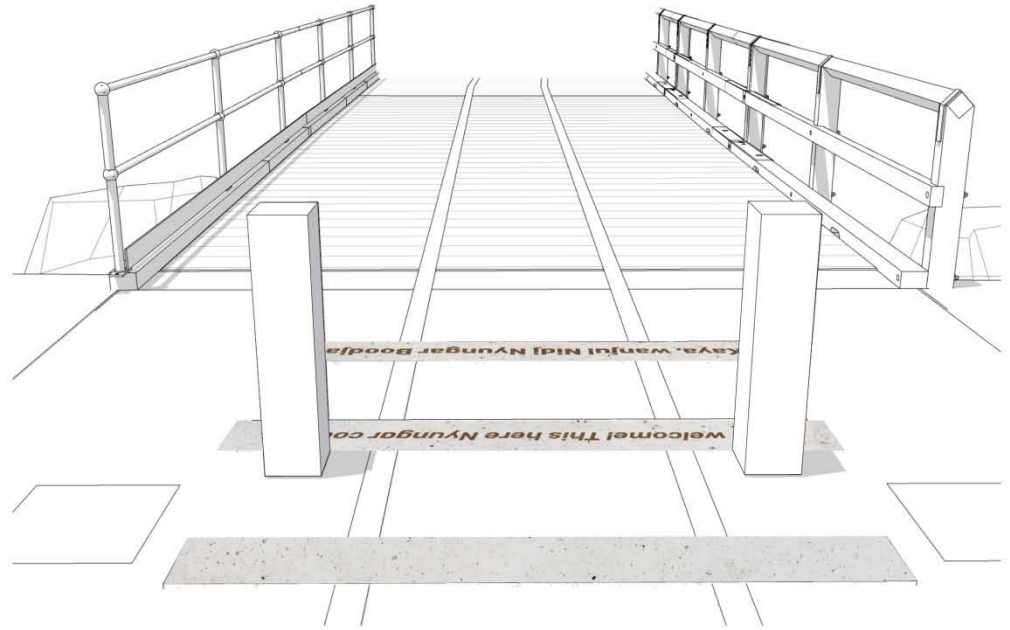
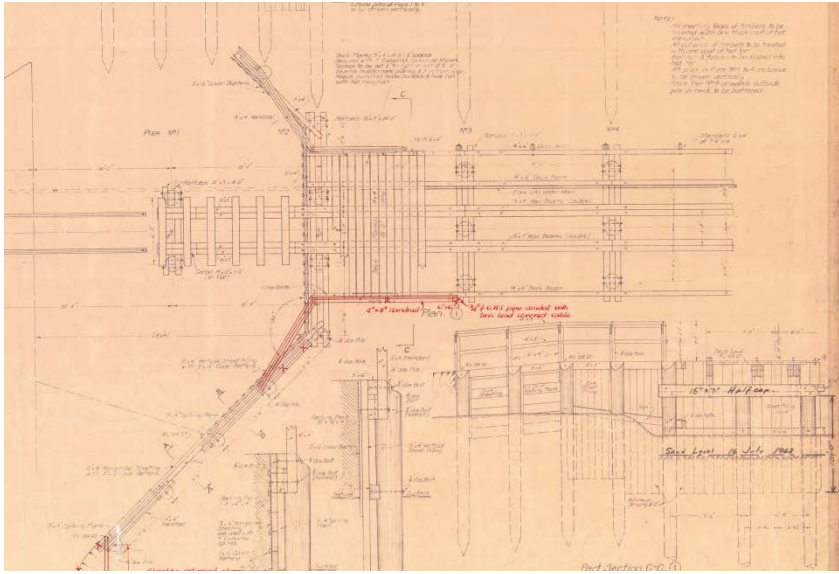


Fishing seats



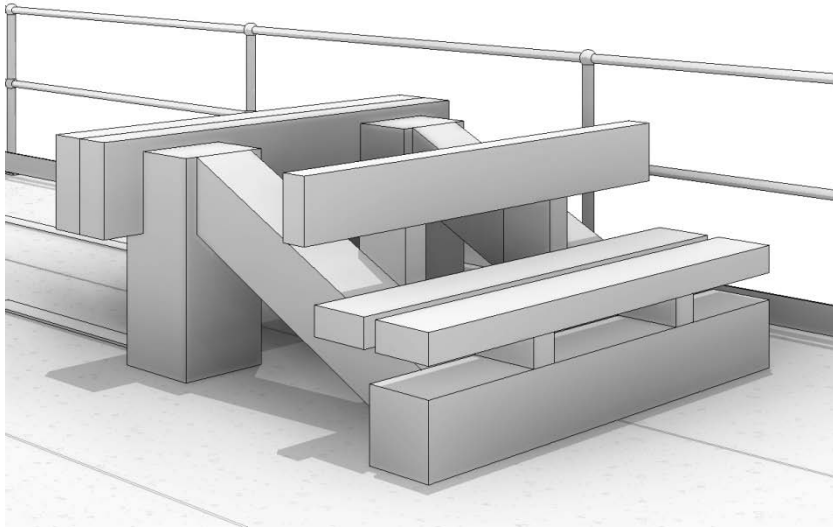


# Interpretation Nodes

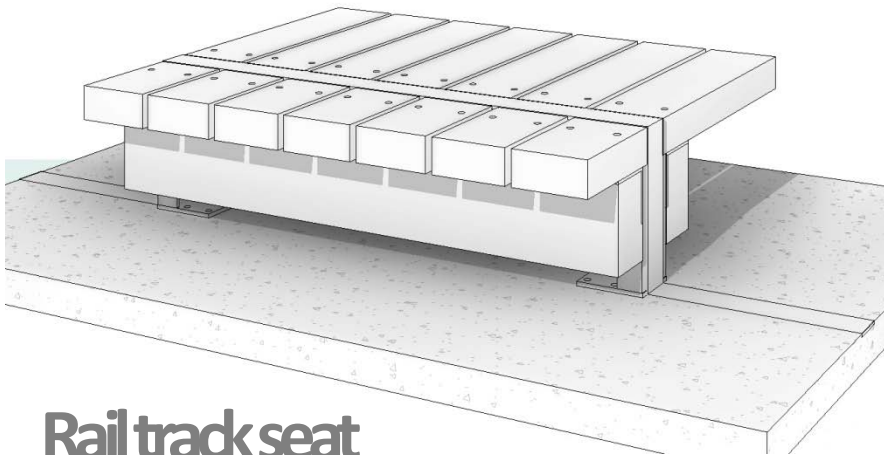
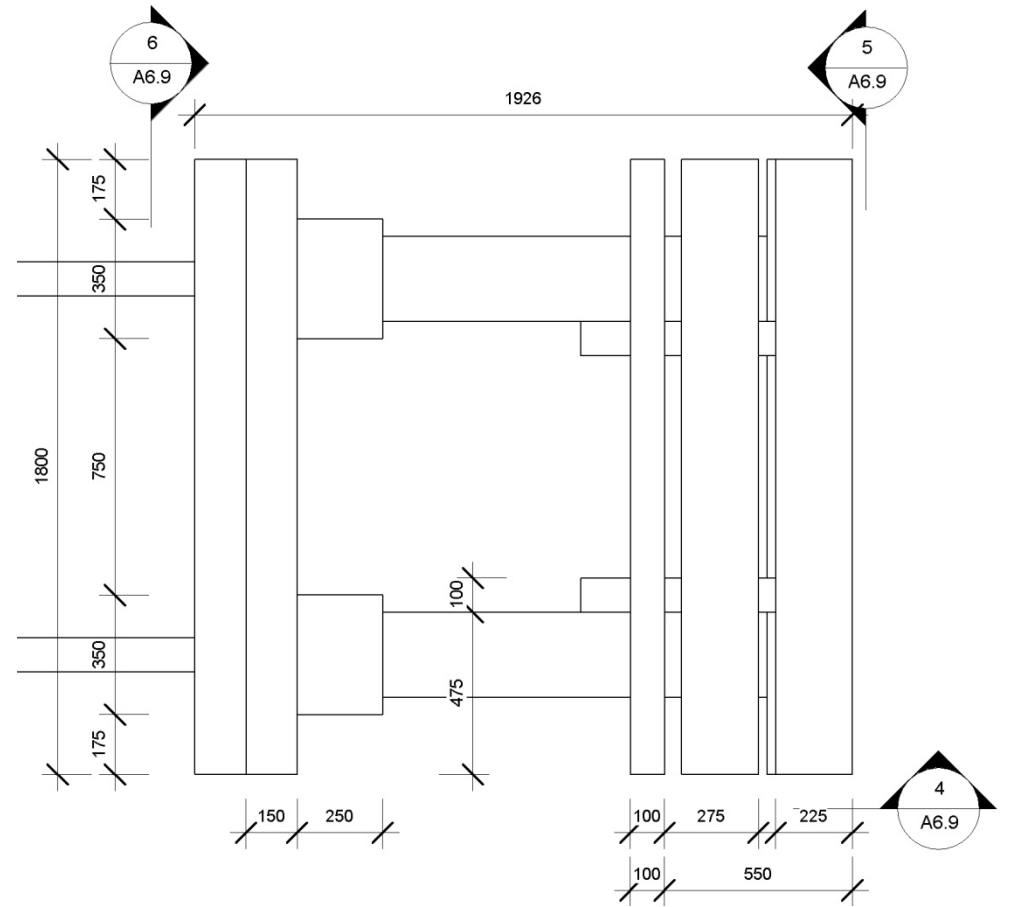


↑  
DUAL LANGUAGE ABORIGINAL INTERP.

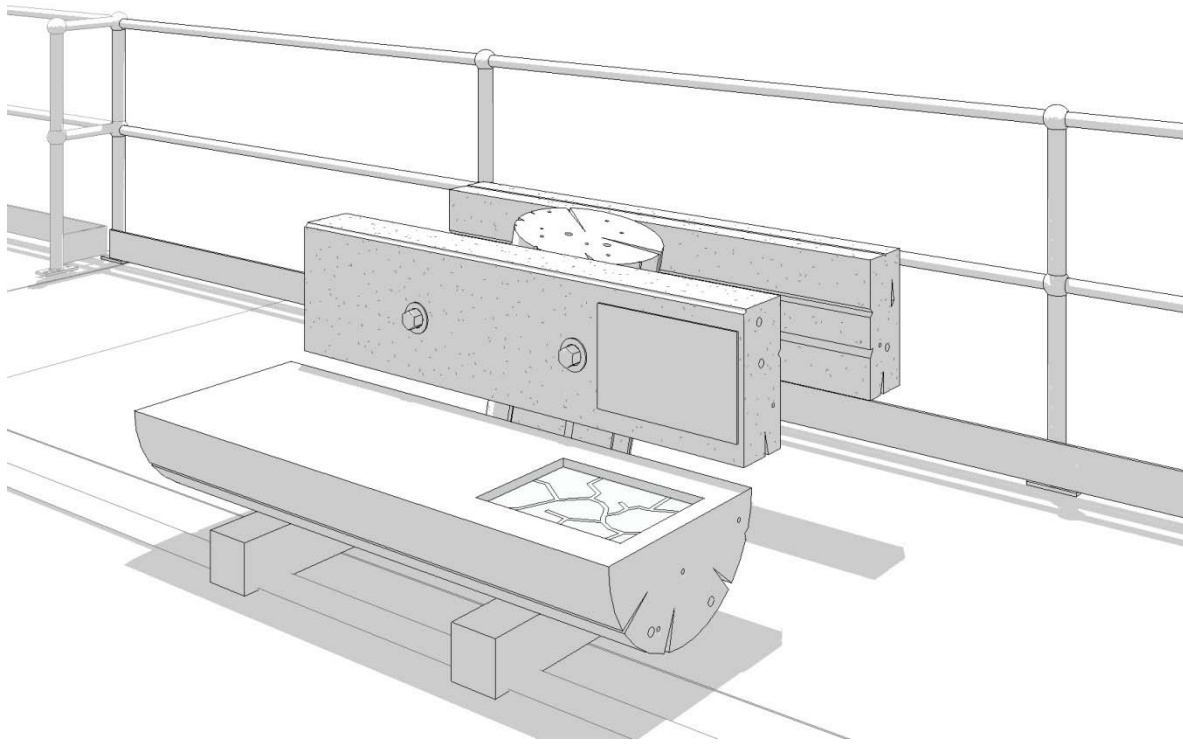
Revetment crossing  
Interpretation Node #5



**Buffer stop seats**  
 Interpretation Node #9



**Rail track seat**  
 Interpretation Node #3 (Part of Memorial)

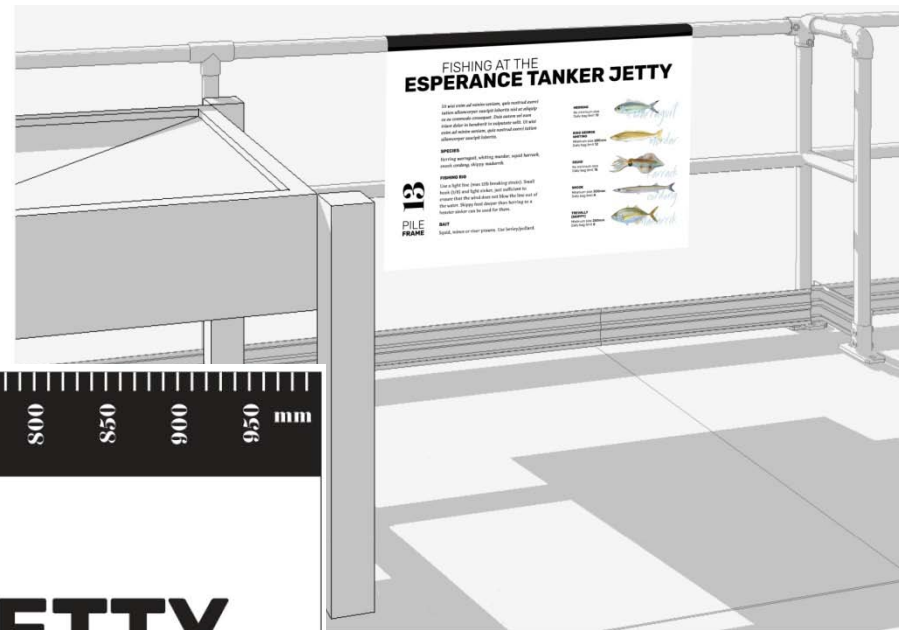


## Half-cap & pile seat

Interpretation Node #7

# Fish cleaning station

## Interpretation Node #2



# FISHING AT THE ESPERANCE TANKER JETTY

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### SPECIES

Herring warraguit, whiting murdar, squid karrack, snook cordong, skippy madarrik.

### FISHING RIG

Use a light line (max 12lb breaking strain). Small hook (5/8) and light sinker, just sufficient to ensure that the wind does not blow the line out of the water. Skippy feed deeper than herring so a heavier sinker can be used for them.

### BAIT

Squid, mince or river prawns. Use berley/pollard.

### HERRING

No minimum size  
Daily bag limit 12



### KING GEORGE WHITING

Minimum size 280mm  
Daily bag limit 12



### SQUID

No minimum size  
Daily bag limit 15



### SNOOK

Minimum size 300mm  
Daily bag limit 8



### TREVALLY (SKIPPY)

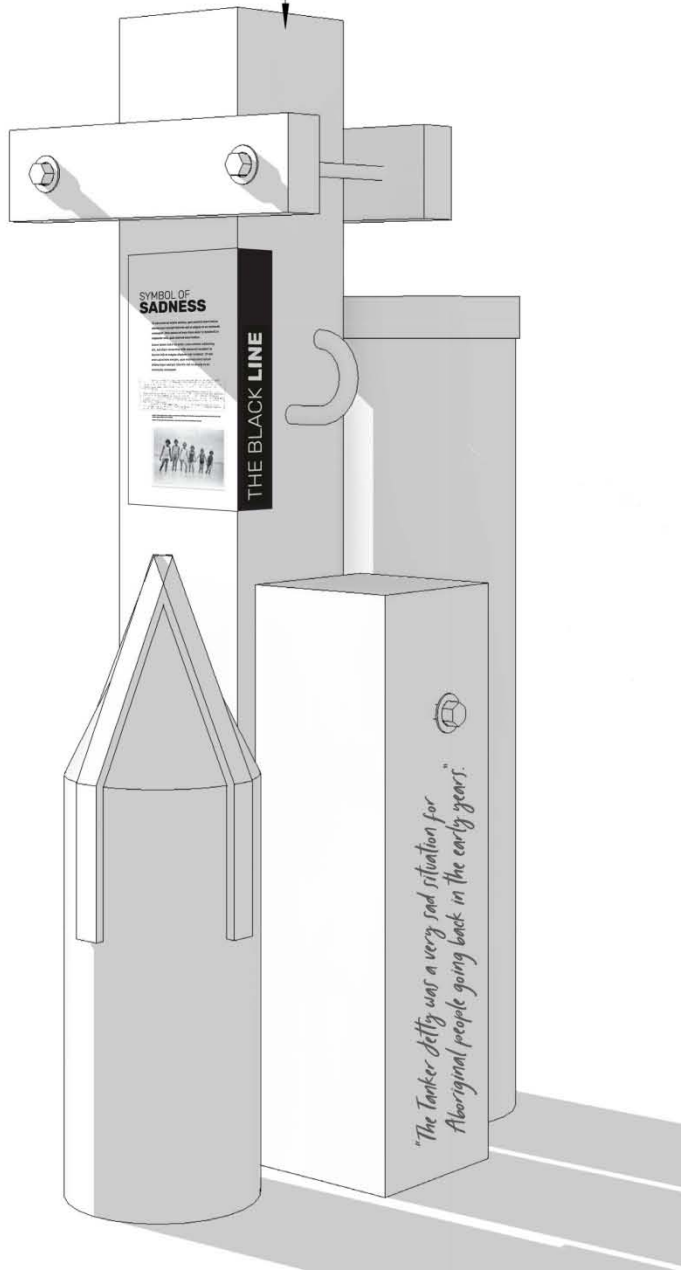
Minimum size 250mm  
Daily bag limit 8



# 13

PILE  
FRAME

VARIOUS ASSORTMENT OF RECYCLED  
JETTY STRUCTURAL ELEMENTS.  
INDICATIVE ONLY.



# SYMBOL OF SADNESS

*Ut wisi enim ad minim veniam, quis nostrud exerci tation  
ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo  
consequat. Duis autem vel eum iriure dolor in hendrerit in  
vulputate velit, quis nostrud exerci tation.*

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat.

Quite a number of young and old Natives are to be met at night time in the streets of the Town more particularly in the business centres, at least four of the younger men are alleged to either own or possess fire arms, this in the opinion of my Board is a menace to the Public safety.

My Board therefore direct me to respectfully request that you bring before the Heads of your Department the necessity for the establishment of a Native Reserve or Camping Ground in some suitable locality a few miles distant from Esperance Townsite without delay. My Board will support the application with a letter to the Officer in Charge of the Aborigines Department.

Further my Board would ask that no Natives be allowed to reside within the Town Boundary and that the Regulations in as regard Natives in the Town after nightfall be enforced.

ABOVE: Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat.

BELOW: Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit.



THE BLACK LINE

# Deck height

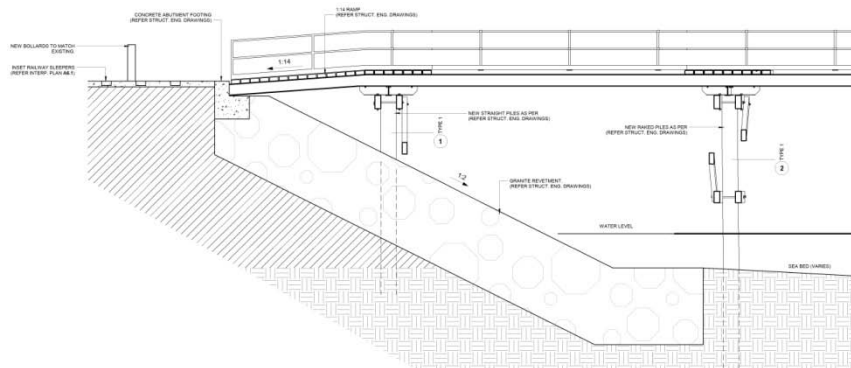
## Design considerations

- Deck levels should generally be kept as low as practicable
- Current deck level is 4.3m LAT, which would be significantly overtopped in storm event
- It is proposed to have a bottom of deck level of +4.6m LAT (+4.02 AHD) at this stage, which means a top of deck level once steel and panels are placed of +5.2m LAT/+4.62m AHD)
- The pathway to tie in on the landward side is approx 3.7m AHD (4.28m LAT), so to get from that level up to the proposed finished deck level, a 1:14 accessible ramp is proposed. This will mean that the first section of the deck surface will be sloped
- AS4997 advises that maritime facilities should be designed to cater for increase in sea levels due to global warming. For 50 years design life, the allowance shall be 0.2m

# Rescue ladders and life rings

## Design considerations

- According to AS4997, rescue ladders shall be located at 60m spacings, with life rings positioned nearby.
- The rescue ladders shall extend from deck level down to 300mm below the low water level
- The rescue ladders are proposed to be located on the north side of the jetty, as the steel balustrade will allow for greater flexibility for fixing and cut-outs to accommodate the ladders
- Proprietary ladder systems are proposed to allow them to be readily sourced and replaced.





# Corrosion protection

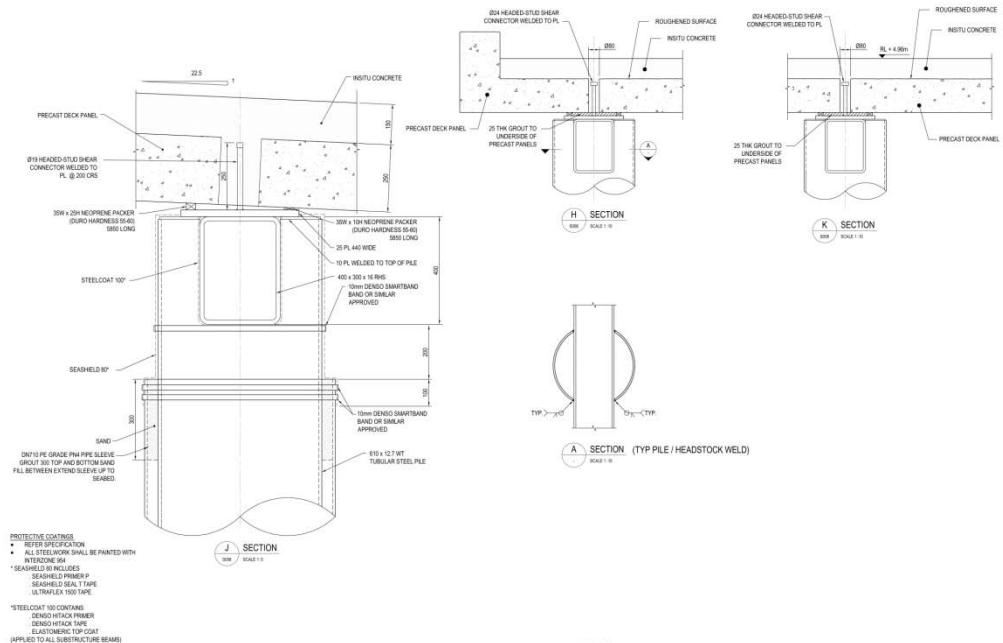
**Piles** – painted (Interzone 654 or similar) and sleeved with HDPE sleeve and a wrap to seal the top under the headstock. The sleeve protects the paint and should be low maintenance over 50 yr design life. If piles are painted only, they will need an annual inspection and touch ups in 10 years approx. Most paint systems have 20 year design life.

**Sub-structure steel** – painted (Interzone 654 or similar) and wrapped with Denso tape to achieve 50 year life. The Denso tape is quite fiddly to install and is susceptible to damage (wilful or unwilful) so will need regular inspection (annual) and replacement when damaged.

**Cathodic protection** – usually only applicable for parts of the structure permanently immersed in water (ie. 2/3 pile length only). Not usually recommended in remote areas where maintenance by trained personnel is difficult and costly. Require divers for inspection and maintenance which can also be a safety risk. If CP is considered, sacrificial anodes are usually more practical as they require less maintenance and you replace them at the end of the design life. Cathodic protection systems can have stray currents which can affected moored vessels and unprotected structures

## Design considerations

- According to AS4997, the aim of the design of maritime structures is to provide structures that are stable, have adequate strength against ultimate conditions and remain serviceable while being used for their intended function, and which also satisfy requirements for robustness, economy and ease of construction, and are durable.

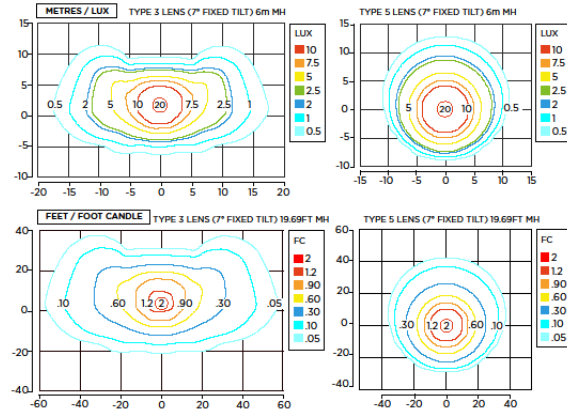


# Lighting

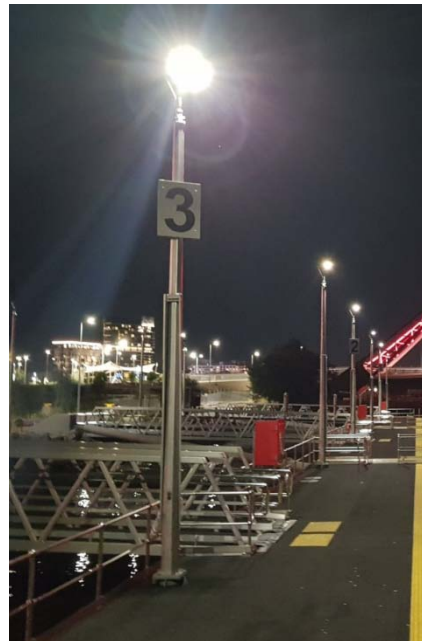


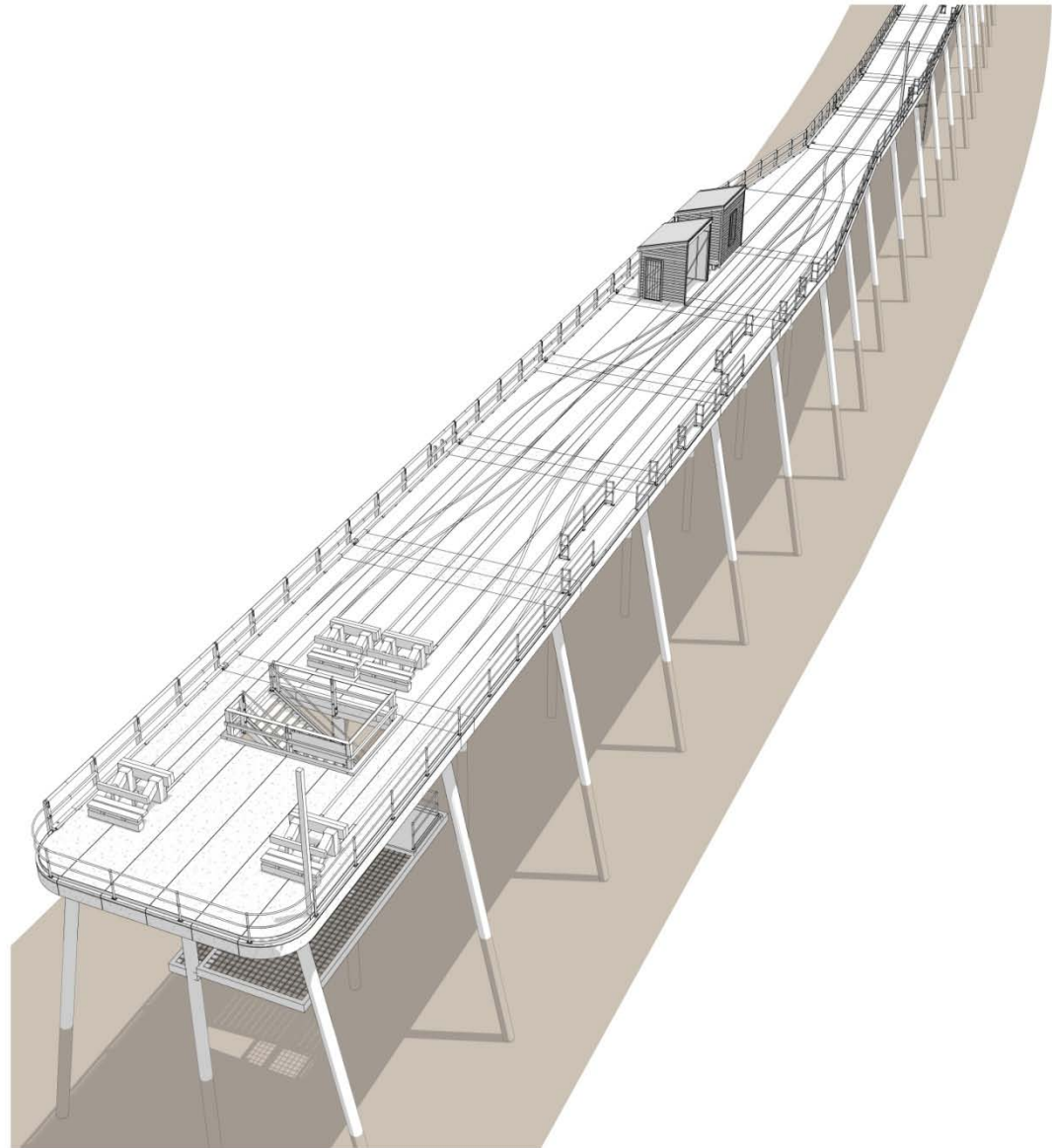
**LED:** CREE 15W full power / 7.5W all night operation  
**MOTION DETECTION:** 360° sensing range with re-trigger modes  
**WEATHER RESISTANCE:** Fully sealed IP65 waterproof construction, with 316 / 304 grade stainless steel components  
**CONTROLLER:** MPPT controller with programmable ON / OFF settings between 1-22 hrs  
**BATTERIES:** 12.8V 22Ah (409.6Wh) LiFePo4 battery with inbuilt BMS  
**SOLAR PANEL:** 50W USA made n-mono-crystalline solar panel with class leading 24% solar cell efficiency  
**ASSEMBLY:** 4mm / 0.15" die cast aluminium chassis with TIGER Drylac® marine grade powder coating (black as standard)  
**VANDAL RESISTANCE:** Impact resistant IK10 polycarbonate LED lenses and impact resistant tempered glass solar panel

## PHOTOMETRICS



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