5. Delivery

5. Delivery

Brendon Wittram

RSC Site Manager

RIVER STEWARDSHIP COMPANY

5. Delivery

Wetland Scrapes

5. Delivery

Wetland Scrapes

5. Delivery

Seasonal Habitat Pond

5. Delivery

Seasonal Habitat Pond

5. Delivery

Leaky Barriers – Timber Sleeper

5. Delivery

Leaky Barriers – Timber Stake

5. Delivery

Leaky Barriers – Drystone Wall

5. Delivery

Landscaping / Planting

6. Handover

6. Handover

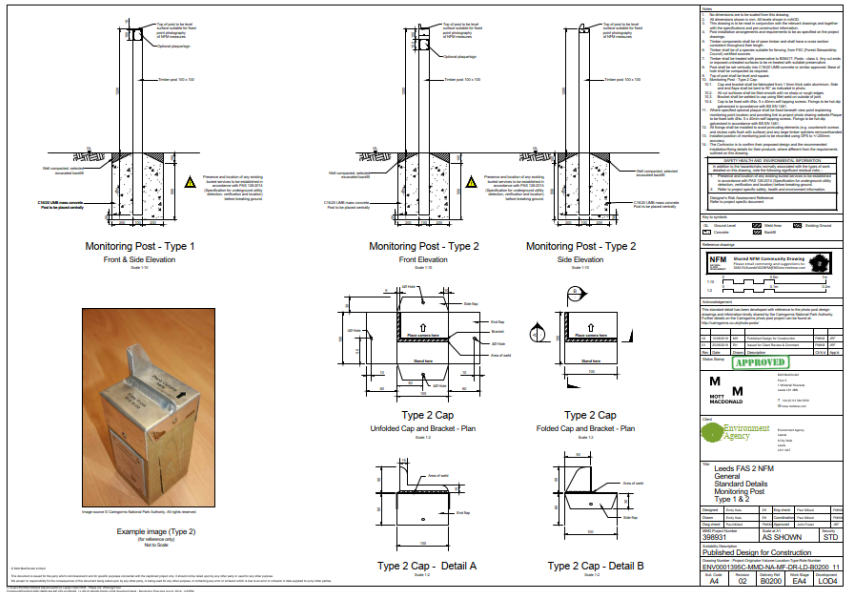
Lessons Learned

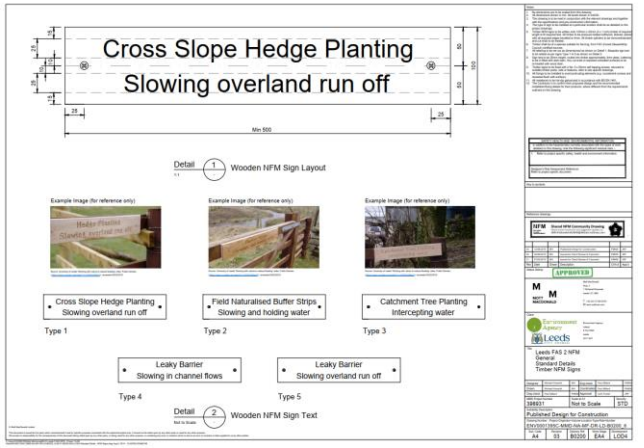
- **Setting Out –** Site team struggled with ‘Seasonal Habitat Pond’ as limited fixed features (e.g. walls etc) to orientate from (which tree!).
- **Proportionate EA CDM Process** – Agreed with EA Principal Designer that on future sites, a more proportionate approach should be adopted (dependant on Contractor skill set/experience), but Hazard maps still required.
- **Detailed Drawings** – Standard detail drawings were useful, but detailed setting out drawings could have been replaced by ‘on site’ discussion/agreement.
- **Project Duration** – Initial MM site visit end September 2018, Construction work completed over a year later. Therefore needed to develop project approach to ‘simplify and streamline’ design/development.

7. Monitoring

7. Monitoring

Monitoring & Maintenance





4.2.6 Timber Sleeper Leaky Barriers

Table 4.6: Timber sleeper leaky barriers maintenance notes

Ref	Measure Element	Description of Activity	Frequency	Comments
1	Timber Sleepers	Check timber sleepers are securely fixed to the timber stakes. Check no signs of rot along the length of the timber sleeper.	Every 3 months or after every major flood event	Reinstate or replace any loose or rotten timber sleepers. Replace any fixings which have been destroyed.
2	Timber Sleepers	Check for signs of erosion beneath or between timber sleepers and channel sides, and check timber sleepers are embedded.	Every 3 months or after every major flood event	Reinstate exposed timber sleepers and consider additional erosion protection measures such as stones or seeding.
3	Orifice / Drain down hole	Orifice to be kept clear from sediment and debris. Check splash stone remains in position.	Every 3 months or after every major flood event	Clear any silt or debris blocking the orifice/drain down hole. Reposition the splash stone if not positioned immediately upstream of orifice / drain down hole.
4	Timber Stakes	Check timber stakes are vertical and show no sign of failure or rot. Check fixings are still effective	Every 3 months or after every major flood event	Reinstate or replace and loose or rotten timber stakes and fixings.
5	Upstream-channel	Check upstream channel is clear of debris.	Every 3 months or after every major flood event	Clear any debris in the channel
6	Sediment	Check for sedimentation build up upstream of the barrier.	Every year or after every major flood event	Significant sediment to be removed and placed outside of channel bank.

Mott MacDonald, 2020

7. Monitoring

Storm Ciara – 9th February 2020

Source: Dan Procter: https://www.marlfieldfarm.co.uk/about/natural-flood-management.html

7. Monitoring

Wider benefits

7. Monitoring

Lessons Learned

- **Landowner Feedback (Dan Procter):**
  - Pleased with development process (felt involved)
  - NFM measures working well over all (holding less water than hoped due to land drains)
  - Maintenance undertaken:
    - Removing sediment build up on leaky barriers and in ponds
    - Scouring under ‘in-channel’ leaky barriers
    - Stock proofing and weeding (thistles and dock leaves trying to take over)
  - In-field features not tested as no flooding as extreme as Boxing Day 2015
  - Pleased with environmental impact of features (particularly hedge and buffer strips)
  - With hindsight I would have liked to make ponds and scrapes a little bigger

- **Site Visit Feedback?**