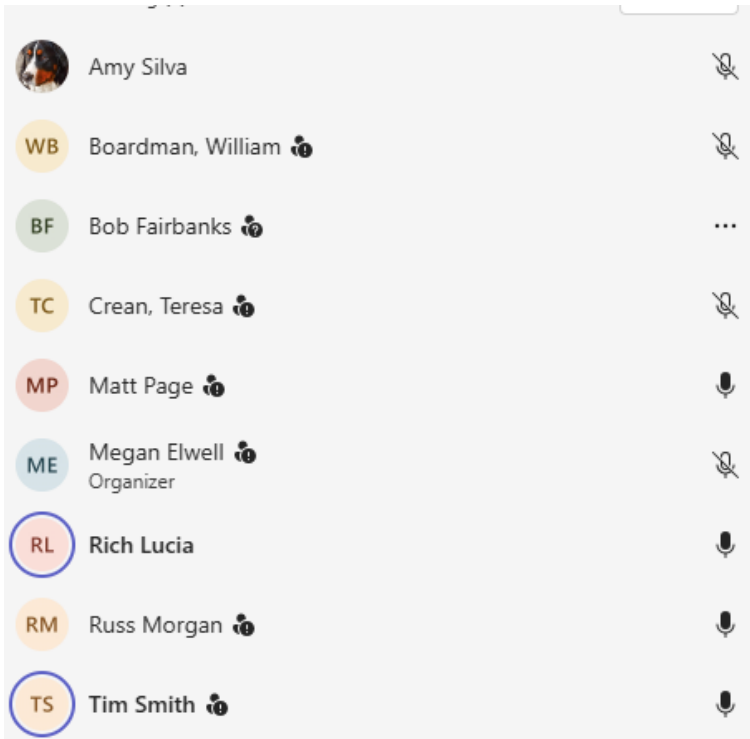


Cliff Walk 8.5.26

Bill Riccio & Bill Boardman



Owners & Atty are not in meeting

GZA met with owners engineer and developed concepts

Preferred option is the rip rap in front of bedrock. Came up with 7 alternatives

Alt 1: Doing nothing is really not an appropriate alternative b/c bridge could collapse, will not protect shale bedrock, could lead to failure of cliff walk

Alt 2: Removing the bridge may not be acceptable to owners, HPHC or Cliff Walk assoc. will not protect shale bedrock, could lead to failure of cliff walk

RL asks what owners opinion is: He has not discussed removal of the bridge. If it came down to it, they might entertain it, but might view it as a taking... likely they don't want to do this

Alt3: Remove & replace bridge, reinforce eastern abutment. Very complicated to organize equip to to do micropiles. Will stabilize the bridge but not the rock mass – may eventually lose the overlook.



RL- agrees that stabilizing the mass of rock/soil is a good idea and 3 may not be a good solution

BF- this is not a permanent solution and will not stabilize the rock mass. He doesn't think this is the best solution

RL- this could be used in coordination with an alternative later on....

Alt 4: Underpinning – no bridge removal/rebuild (3 removes everything). Similar difficulty with access/pinning. Also not stabilizing the rock mass

Alt 5: Remove bedrock, extend rip rap at a more stable slope. This will stabilize bridge – mitigates the environmental impacts (*how?*) requires modifications of the shoreline, worried that this work will compromise the bridge and rock mass. Might not even be possible, might not last. This would be altering a Rocky Shore.

Alt 6 & 7 are the most preferred alternatives.

Alt 6: provides direct stabilization of the rock mass, minimizing env. Impacts with a soil nail – shockcrete won't be resilient to wave action. Still construction access concerns.... Doable but difficult. Actual soil anchor locations might need field adjustments

RL- Shotcrete – wire mesh embedded? Or straight gunnite. YES, would have wire mesh – challenge is salt water erodes it and shockcrete doesn't hold up in the marine env. RL: do you NEED to shockcrete it?

BF- might need nut & plate.. GZA not convinced

Alt 7: GZA likes this one #10 bars at 5.5'OC in a grid pattern. You don't need a plate/washer. GZA concerned that might be a historic preservation concern. There's a way to do it by concealing with grout patch if needed. Russ: smaller drill rig can be done by hand (rappelling/hang from a crane). Crane already needed, so likely easiest way.

Russ talks a lot of engineering that I don't understand..... Challenge on finding the interface of soil and rock.

RL- how many bars? Russ- couple dozen depending on size of bar – bigger bar is bigger hole -> swiss cheese. Can also go to high strength bar. This is really going to have to be field determined – RL – that's OK, the general concept is on the plan. Galvanized, can be epoxy coated, maybe stainless. BF thinks galvanized is the best way to go. RL- one gash in epoxy and the entire thing rots/concentrates the corrosion.

Also, there is rip rap façade on either side of this.

RL- avoiding what was the issue at the Council meeting. Thinks 7 is a good choice and won't object to that.

Yes, will go out to PN with new set of plans.

Russ asks – the underpinning of the bridge – would we also not object to that? (3/4) RL- correct. No objections to combining 3 or 4 with 7.

ALS- discuss how this fits with the application/ not SE, perhaps the owners kick in money, this could be approved separately...its btw newport and ochre point as far as money is concerned.

BF- a plan with a combined 3-4 plus 7 could be approved? RL-YES, we need a site plan not just a cross section.

RL discusses plan requirements with Tim and Russ....

Discuss PN/timeline..per Director PN is required. But it wont need SE if as planned (Atl 7)

RL- what's the deal with the Sept funding contract issue/timeline. Bill – still don't have the 11million grant. Needs to be authorized by the feds no later than Sept 30. Project must be authorized by Federal DOT. They're in a pool of other projects vying for the grant Tim-

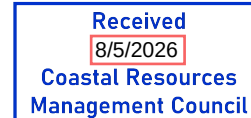
federal approval is contingent upon access agreement. Access agreement wont come without CRMC approval.

Now knowing that there is a path to approval, perhaps can get that access agreement in place without CRMC approval/ahead of approval.

NEWPORT CLIFF WALK REPAIR

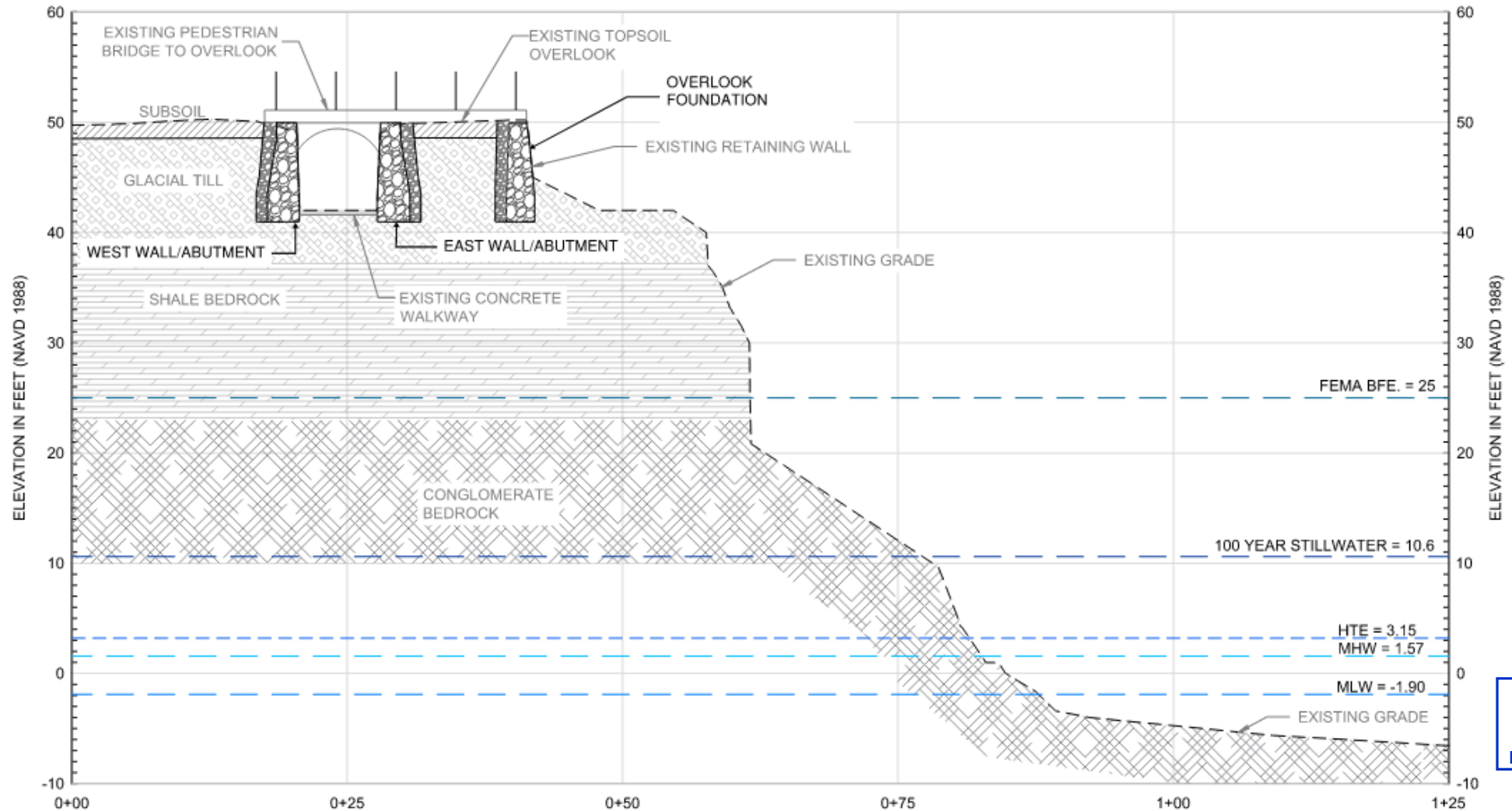
Pedestrian Bridge – Alternative Concepts

07/28/2026



ALTERNATIVE 1

“DO NOTHING”

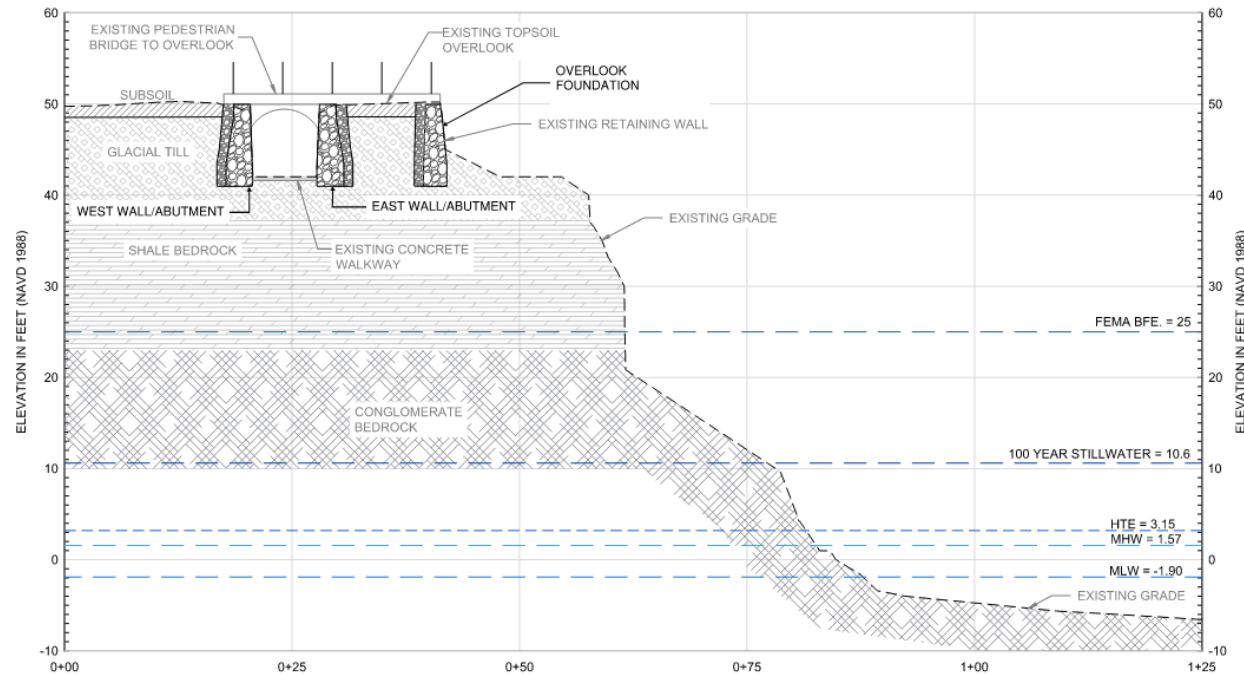


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ALTERNATIVE 1

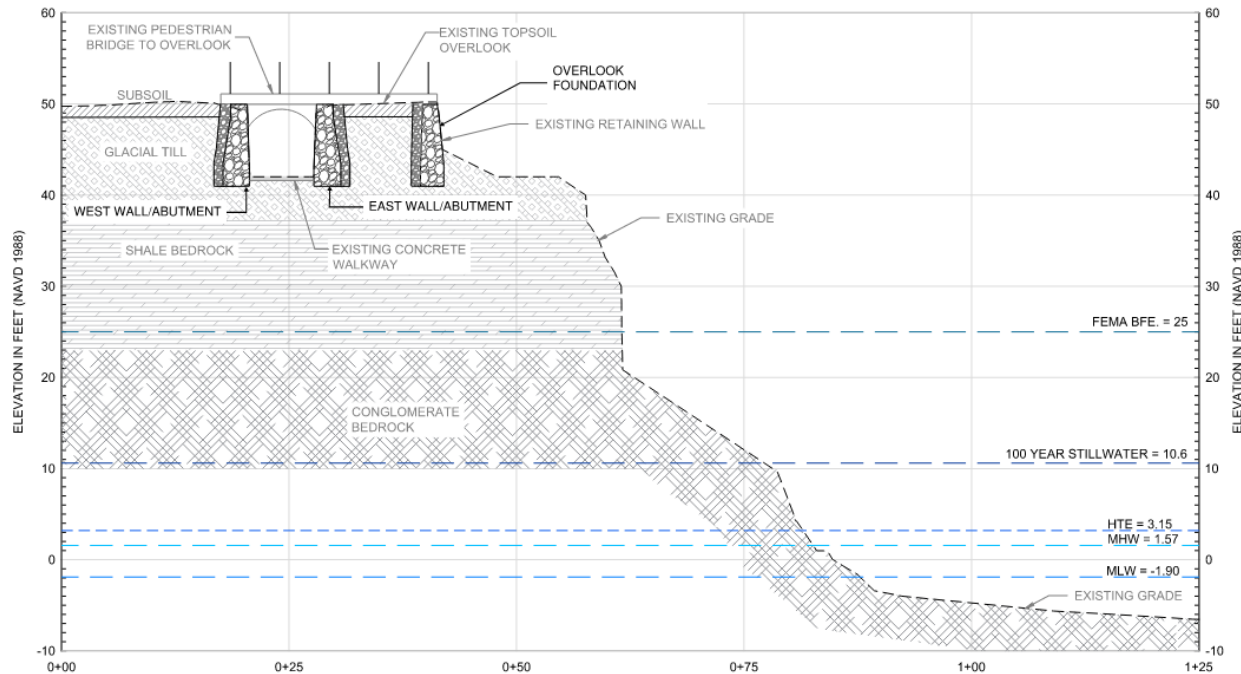
CONSTRUCTION / IMPLEMENTATION SEQUENCE

1. No construction or implementation required.



ALTERNATIVE 1

ADVANTAGES AND DISADVANTAGES



Advantages:

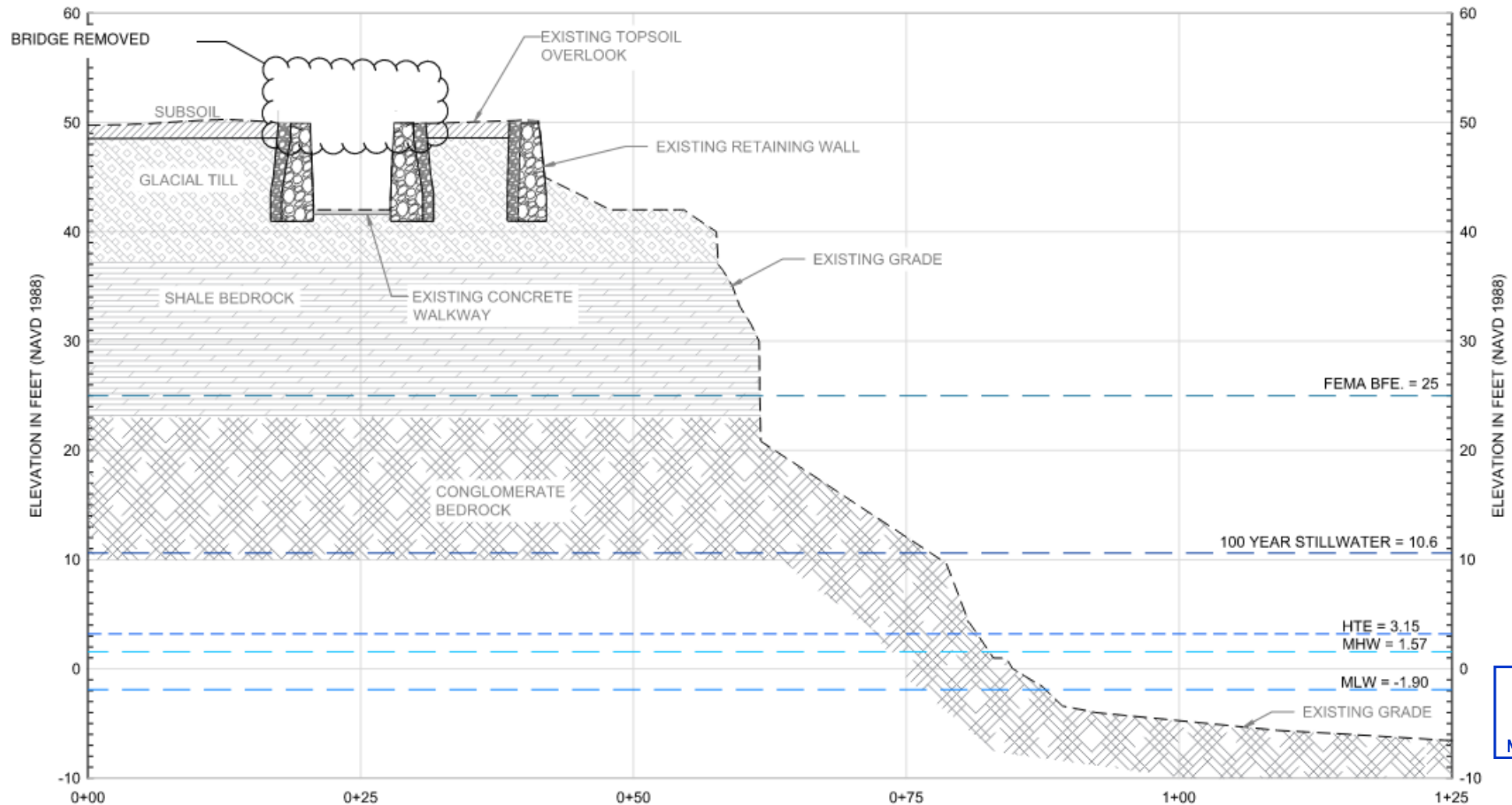
- No additional work required.
- Cost savings.
- No in-water impacts.

Disadvantages:

- Risk of bridge collapse and potential harm to public.

ALTERNATIVE 2

PERMANENTLY REMOVE PEDESTRIAN BRIDGE

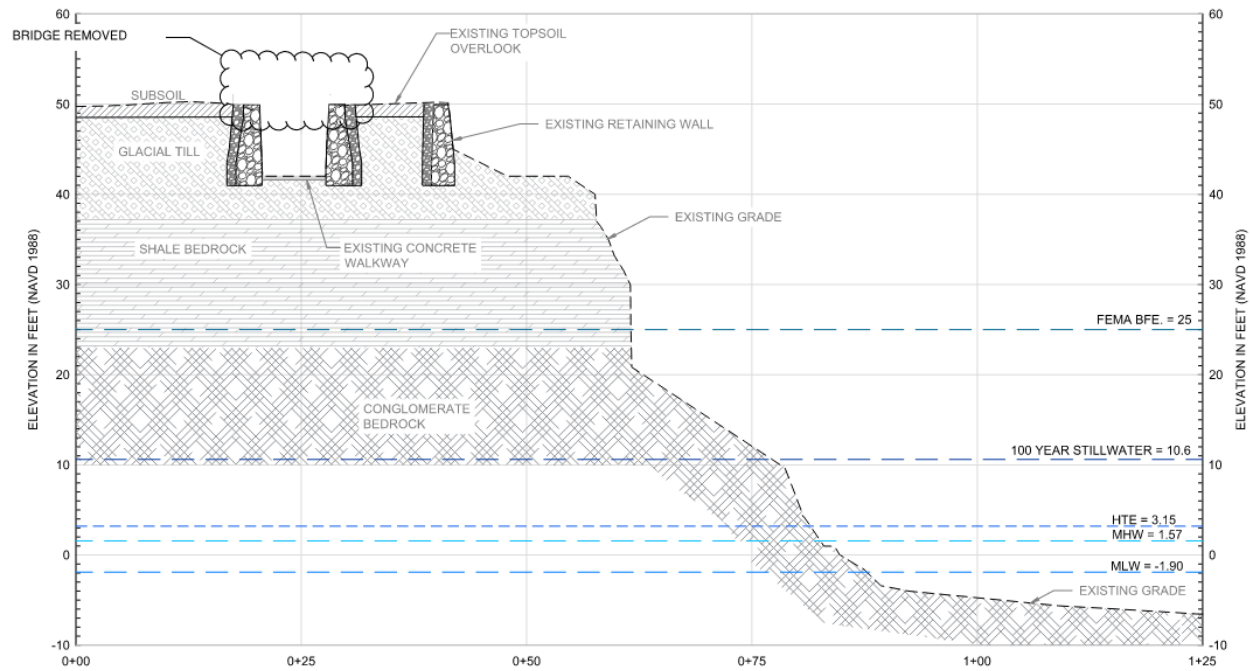


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ALTERNATIVE 2

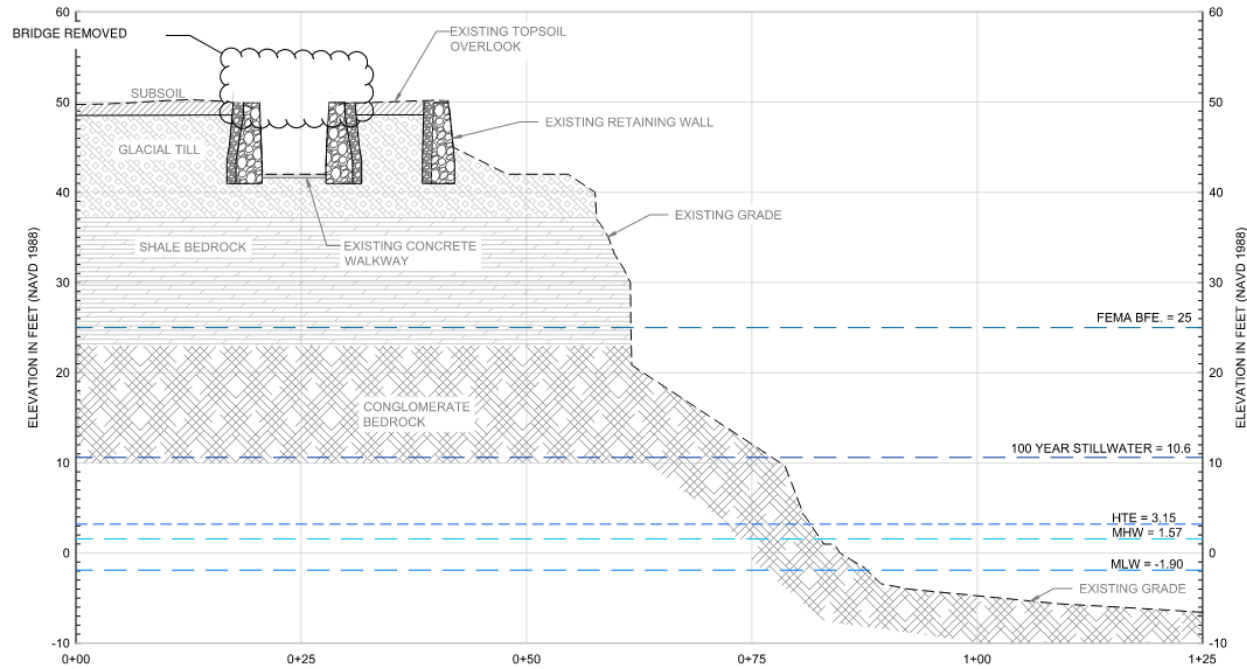
CONSTRUCTION / IMPLEMENTATION SEQUENCE

1. Remove Bridge.
2. Repair western wall.



ALTERNATIVE 2

ADVANTAGES AND DISADVANTAGES



Advantages:

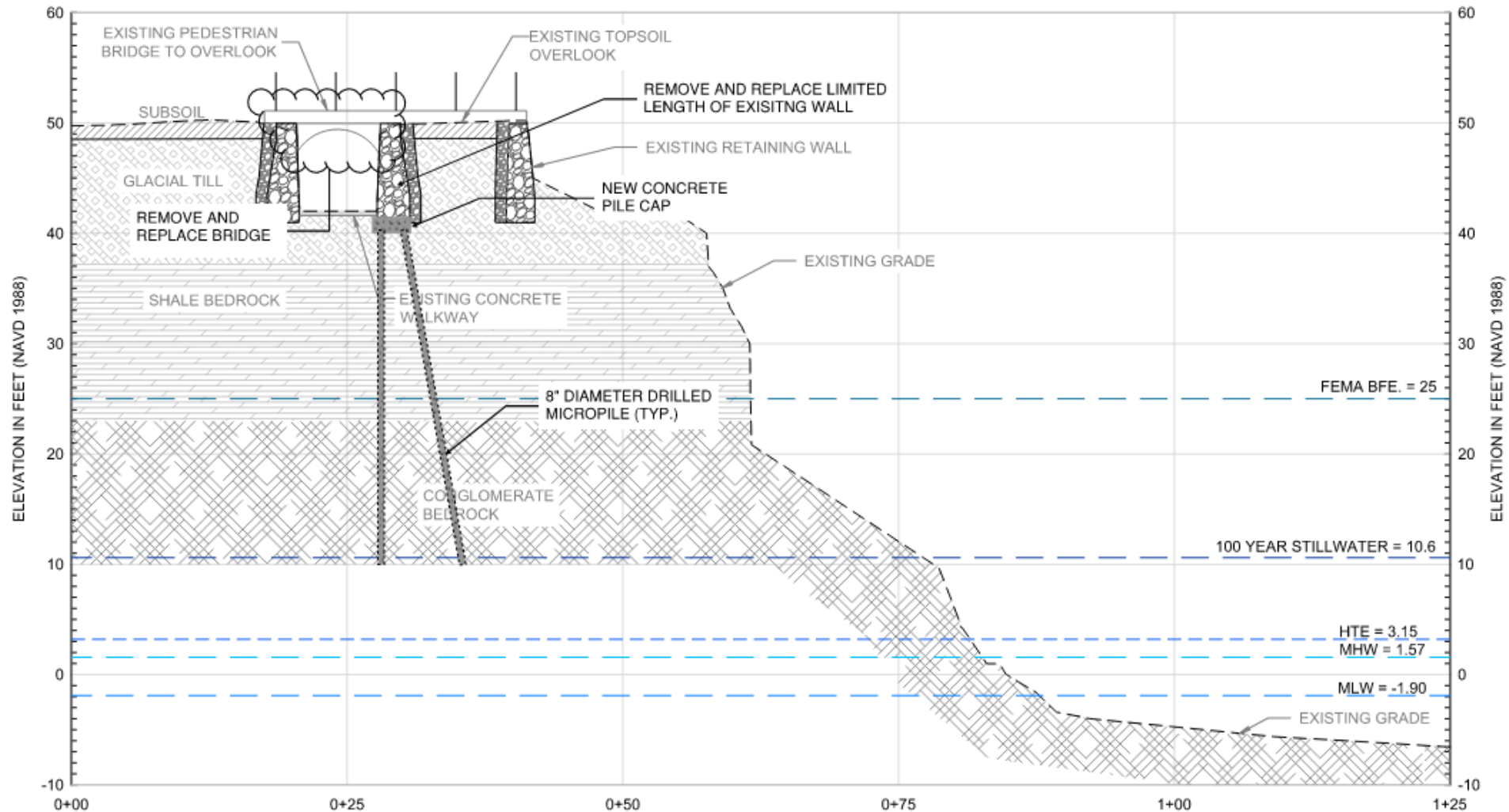
- Removes potential hazard associated with structural failure of bridge.
- Avoid impacts to coastal resources

Disadvantages:

- May not be acceptable to the Historic Preservation and Cliff Walk Commission.
- May not be acceptable to the property owners.
- Eliminates use of existing overlook structure.

ALTERNATIVE 3

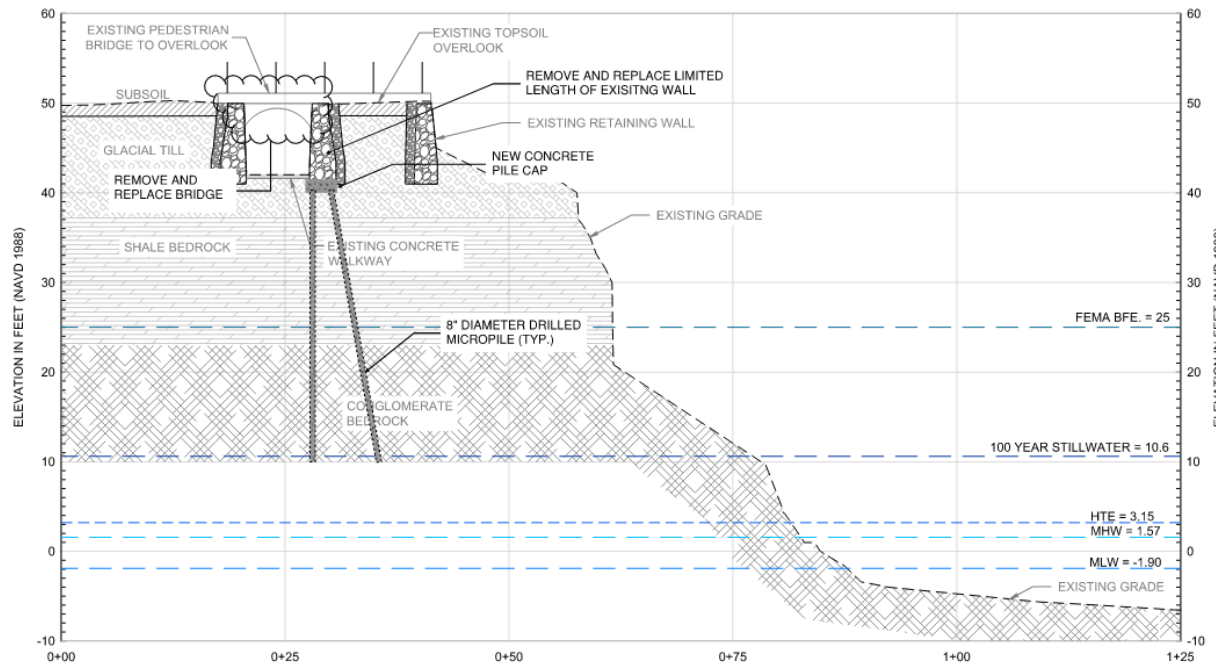
REMOVE AND REPLACE PEDESTRIAN BRIDGE



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ALTERNATIVE 3

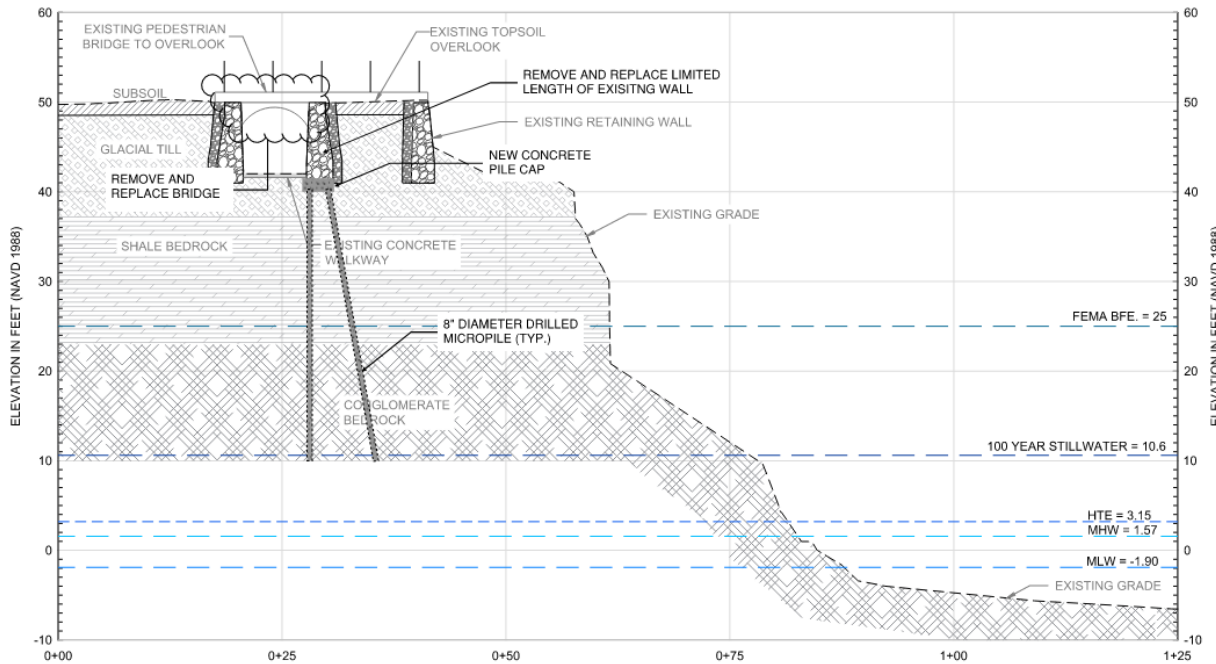
CONSTRUCTION / IMPLEMENTATION SEQUENCE



1. Remove pedestrian bridge and stockpile materials.
2. Remove limited length of the east/west abutments and portions of overlook stone masonry and infill.
3. Drill micropile foundations.
4. Cast new concrete pile caps.
5. Reconstruct east abutment. Reconstruct portions of overlook stone masonry and backfill.
6. Reconstruct the pedestrian bridge in kind.
7. Repave and landscape as needed.

ALTERNATIVE 3

ADVANTAGES AND DISADVANTAGES



Advantages:

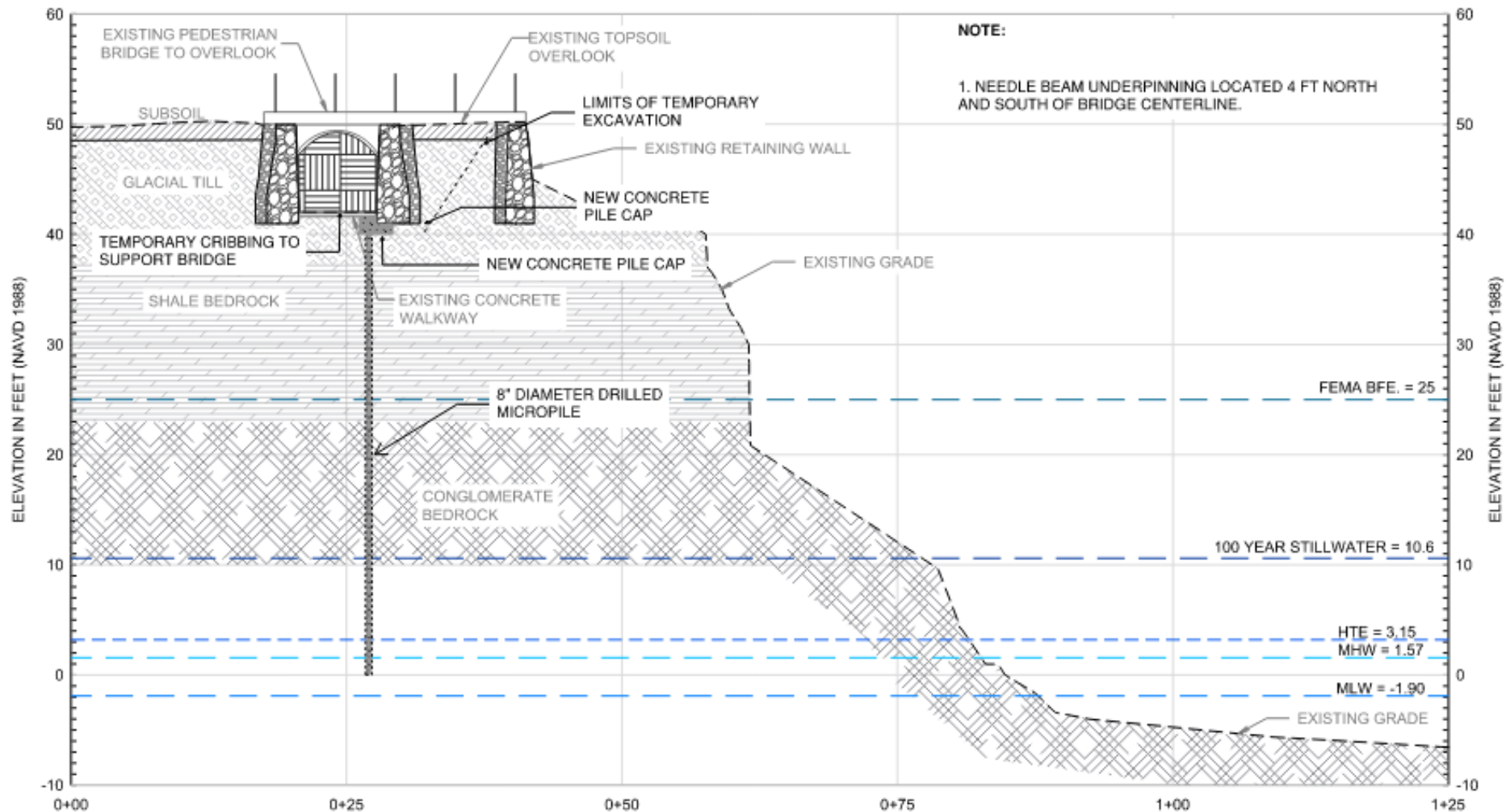
- New east/west abutments would be founded on drilled piles, reducing the likelihood of future bridge movement by providing deep, stable support.
- Replacement bridge would visually match existing architectural character and aesthetic community.

Disadvantages:

- Limited site access complicates mobilization of drilling and construction equipment.
- Drilled piles would stabilize the bridge structure but may not provide broader support to the surrounding rock mass.

ALTERNATIVE 4

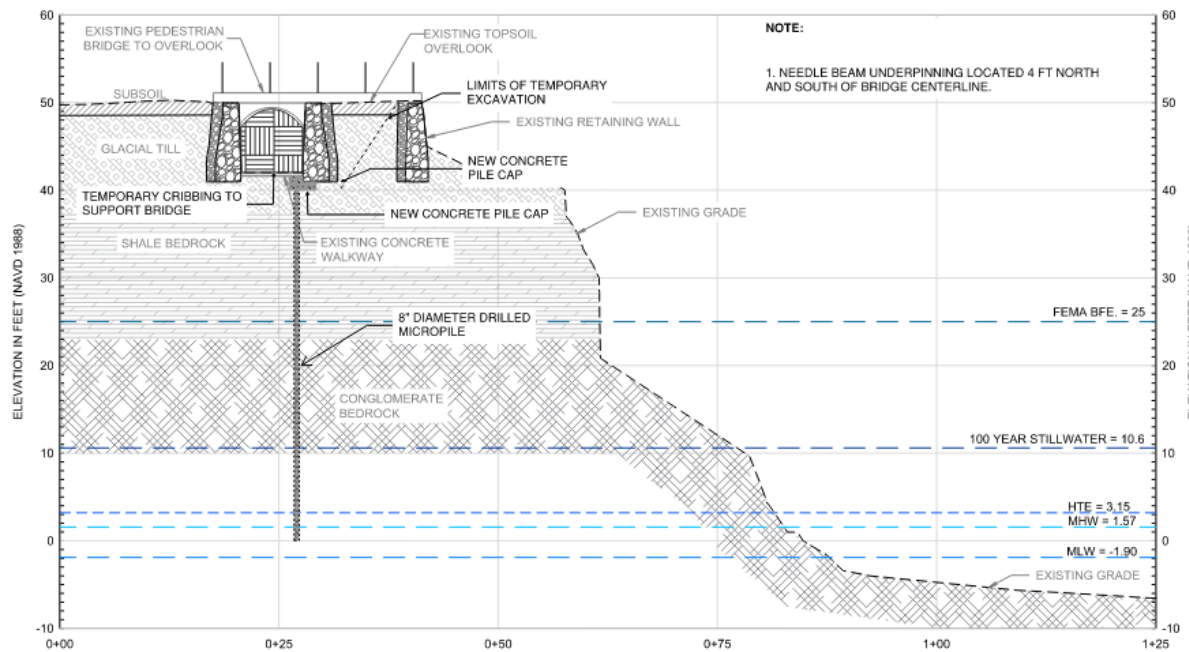
UNDERPINNING EAST ABUTMENT WITHOUT BRIDGE REMOVAL



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ALTERNATIVE 4

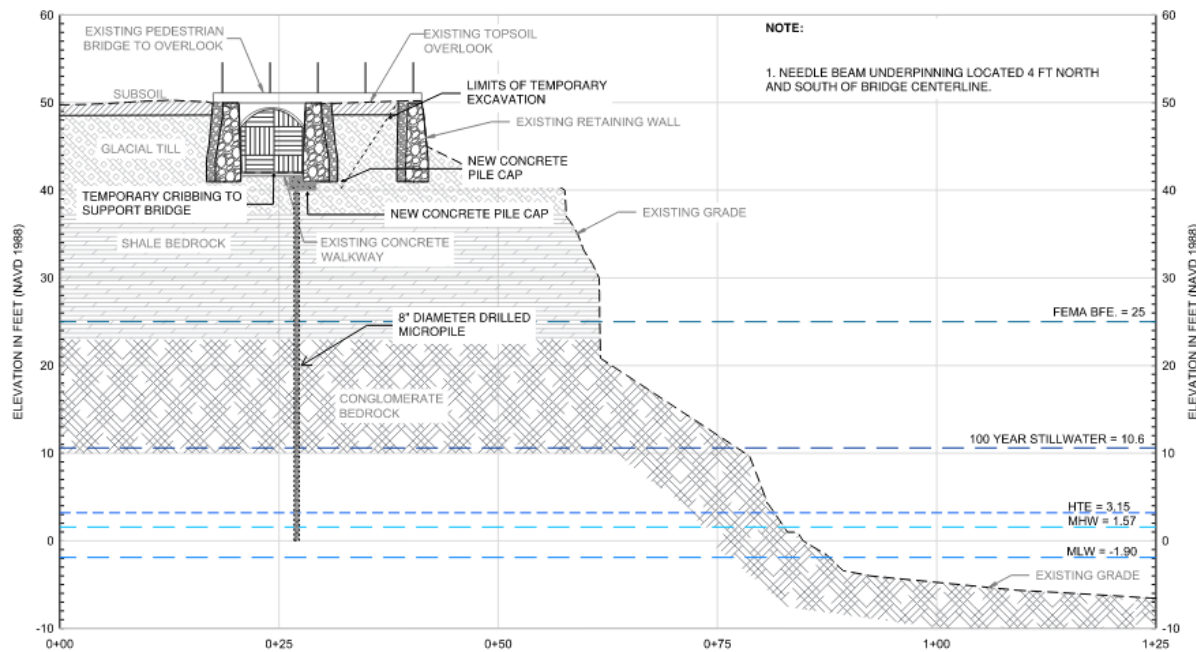
CONSTRUCTION / IMPLEMENTATION SEQUENCE



1. Install temporary cribbing below bridge and establish monitoring program.
2. Excavate in front of east abutment to expose the bottom of abutment foundation at underpinning locations.
3. Drill micropiles.
4. Excavate beneath the foundation to install and grout a steel needle beam into place.
5. Cast concrete pile caps to engage the piles and needle beam.
6. Backfill the excavations.
7. Remove temporary cribbing or repair bridge. Course of action will be dependent on monitoring results.
8. Repave and landscape as needed.

ALTERNATIVE 4

ADVANTAGES AND DISADVANTAGES



Advantages:

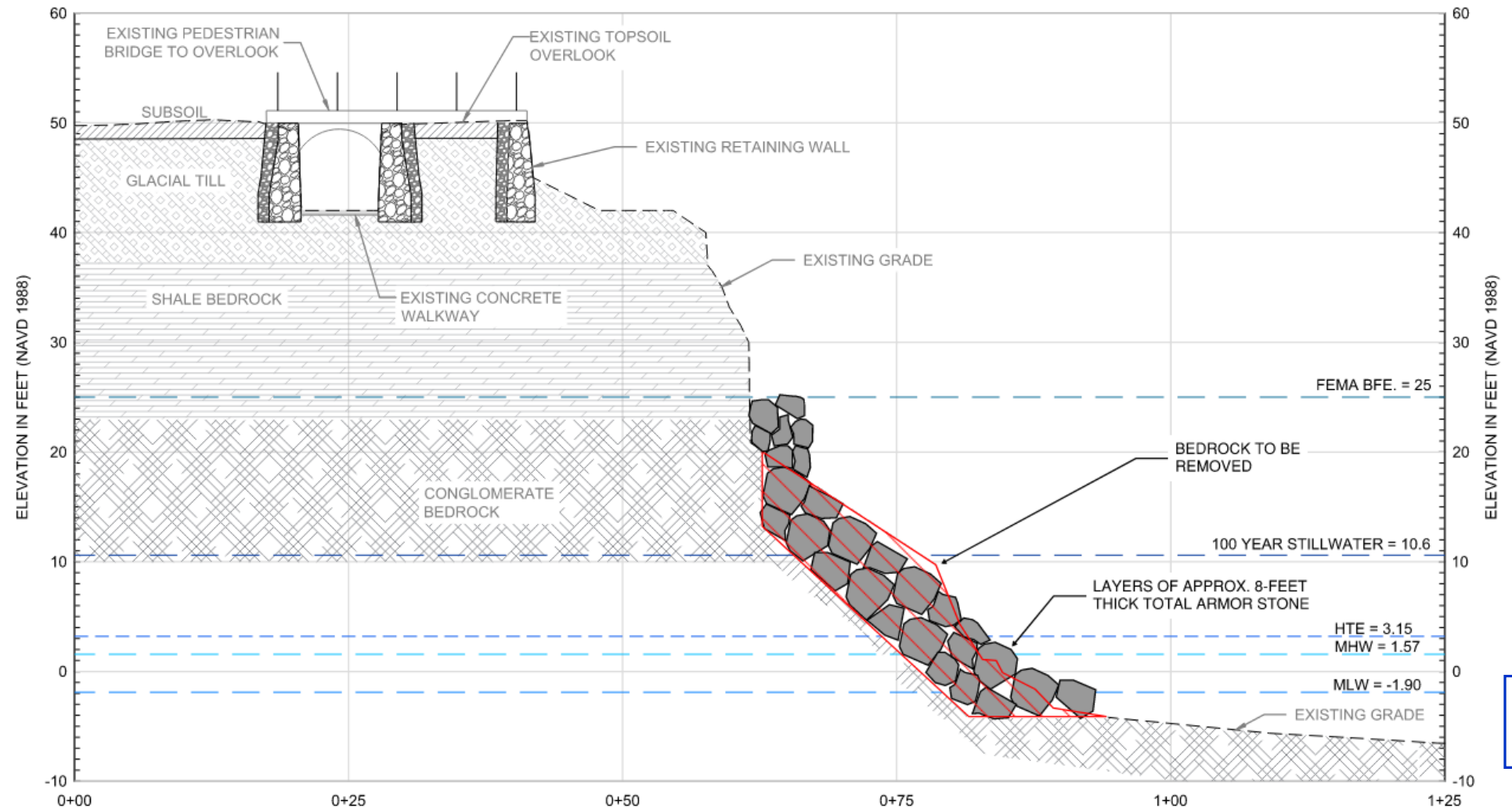
- Bridge will remain in place.

Disadvantages:

- Site constraints create difficult access for construction and drilling equipment.
- Construction will require excavation below the existing wall structures, increasing complexity and risk.
- Temporary cribbing or shoring of the existing bridge will be necessary during construction activities.
- Construction-phase impacts may necessitate additional repair or full replacement of the existing bridge.
- Piles will stabilize the bridge structure but may not provide broader support to the surrounding rock mass.
- Overall construction complexity and required temporary works result in a cost-prohibitive alternative.

ALTERNATIVE 5

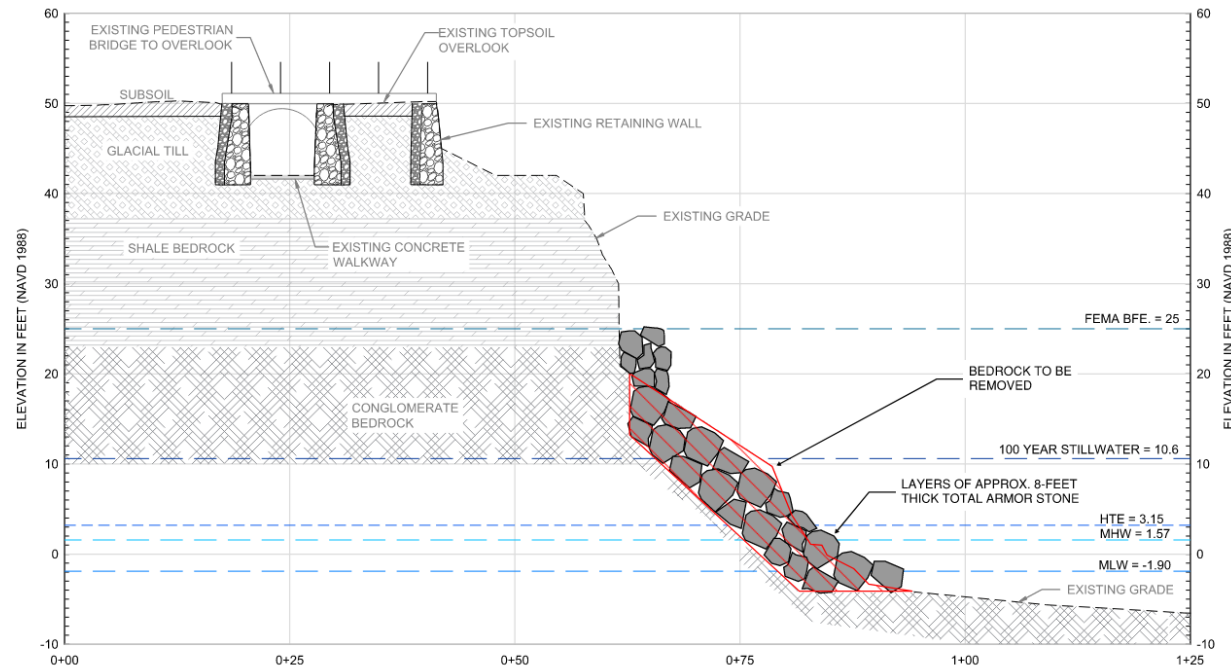
REMOVE BEDROCK AND EXTEND REVETMENT



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ALTERNATIVE 5

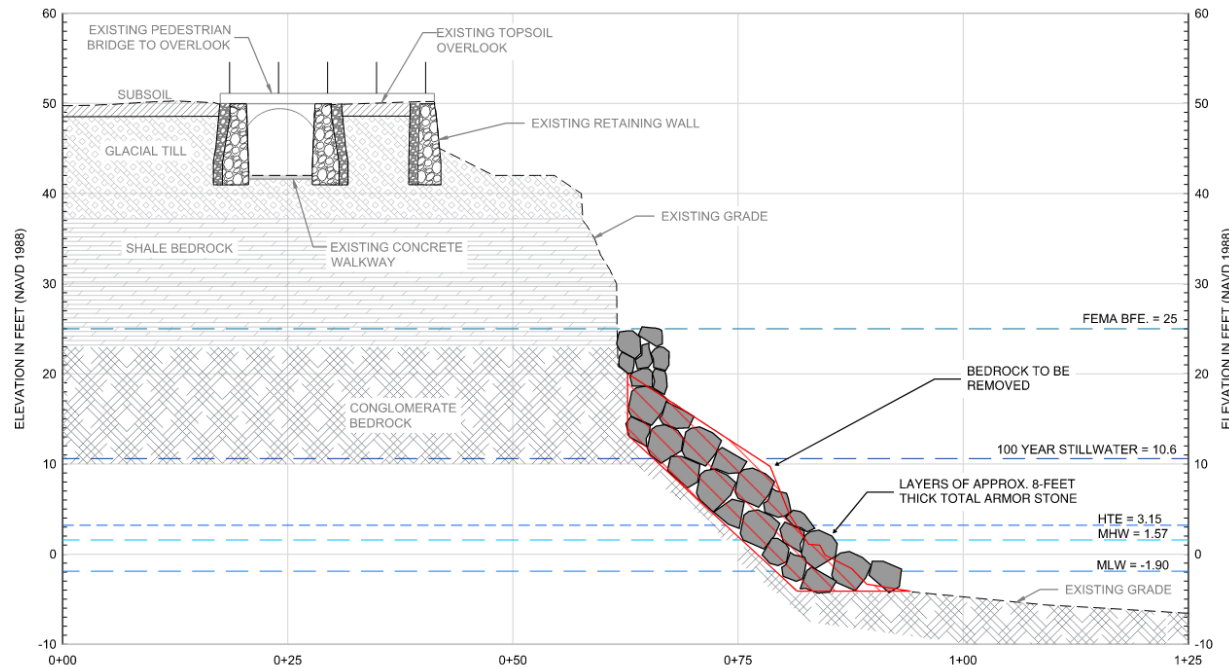
CONSTRUCTION / IMPLEMENTATION SEQUENCE



1. Install temporary cribbing below bridge and establish monitoring program.
2. Remove the soil and bedrock with mechanical equipment as required to reshape the slope.
3. Construct the revetment and anchor stone.
4. Remove temporary cribbing or repair bridge. Course of action will be dependent on monitoring results.
5. Repave and landscape as needed.

ALTERNATIVE 5

ADVANTAGES AND DISADVANTAGES



Advantages:

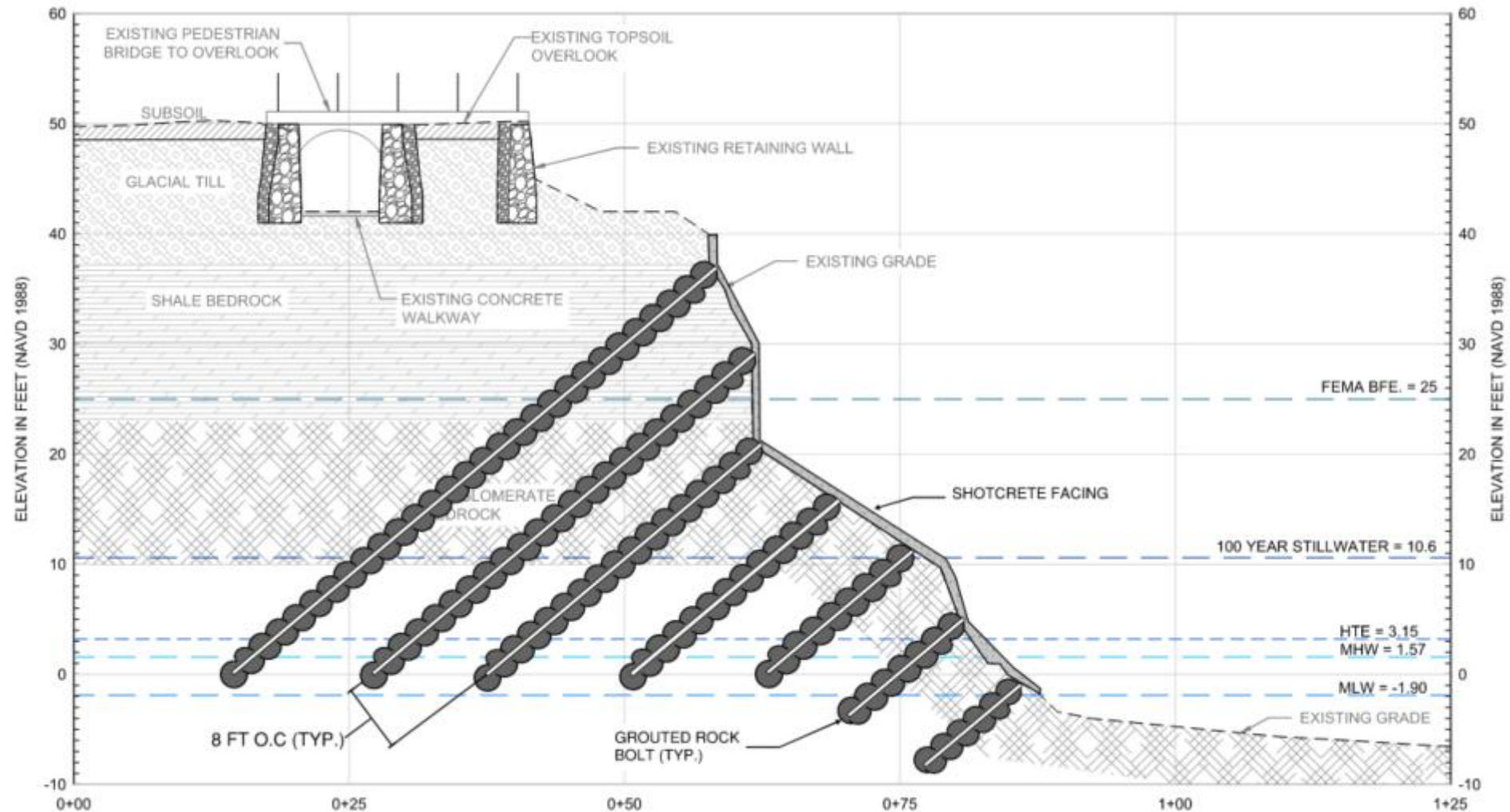
- Provides additional structural and erosion protection to bedrock.
- Further limits environmental and geomorphic impacts associated with wave action along the shoreline.

Disadvantages:

- Additional modifications to the shoreline within tidal zone.
- Rock-removal techniques needed for this alternative are likely to compromise the existing bridge and overlook structures.
- Overall construction complexity within tidal zone and risk result in a cost-prohibitive alternative.

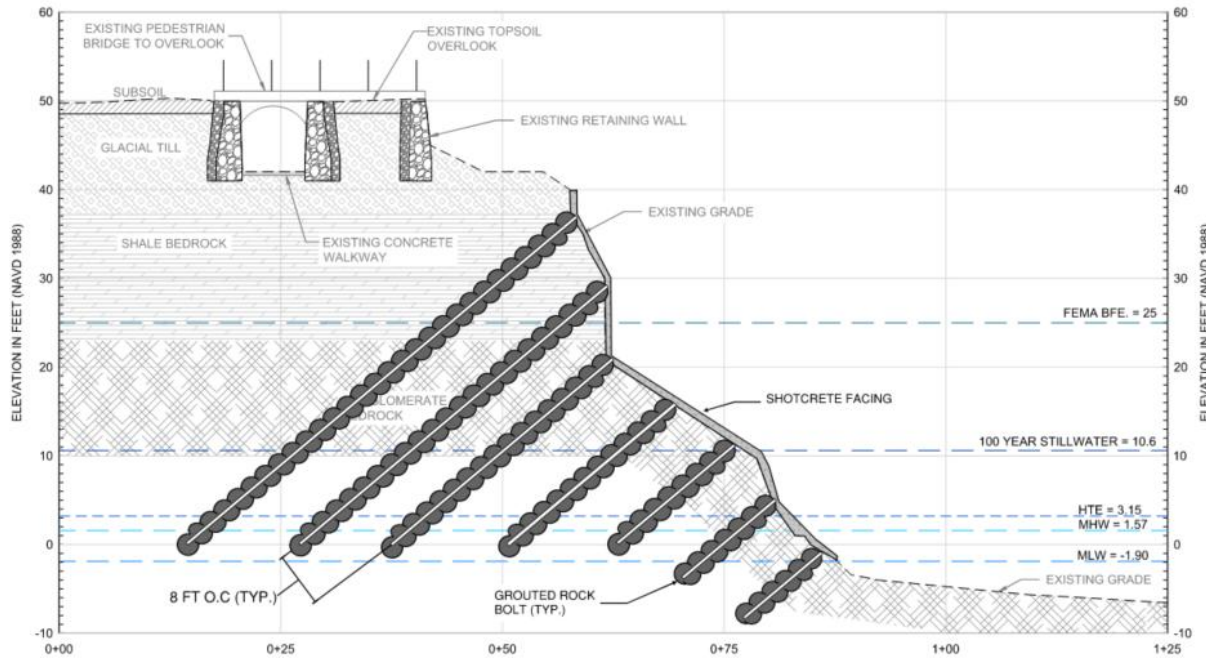
ALTERNATIVE 6

SOIL / ROCK NAILS WITH SHOTCRETE FACING



ALTERNATIVE 6

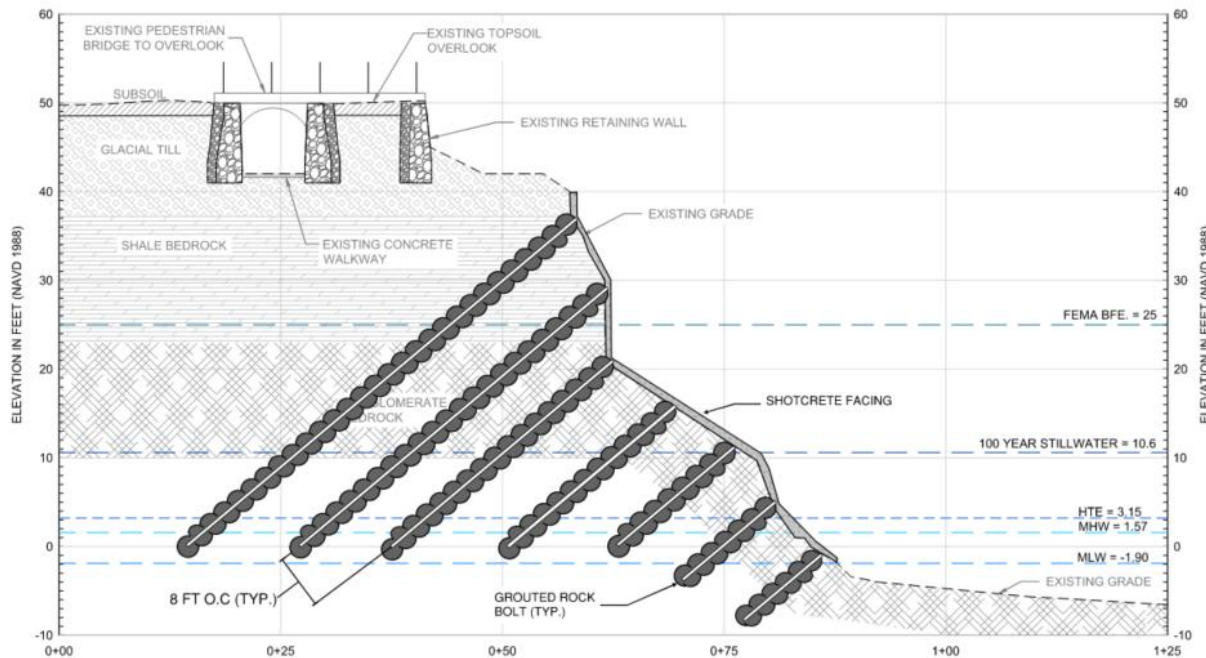
CONSTRUCTION / IMPLEMENTATION SEQUENCE



1. Install temporary cribbing below bridge and establish monitoring program.
2. Drill first row of soil/rock nails.
3. Install section shotcrete facing.
4. Repeat steps 2 and 3 for each additional row.
5. Remove temporary cribbing or repair bridge.
Course of action will be dependent on monitoring results.
6. Repave and landscape as needed.

ALTERNATIVE 6

ADVANTAGES AND DISADVANTAGES



Advantages:

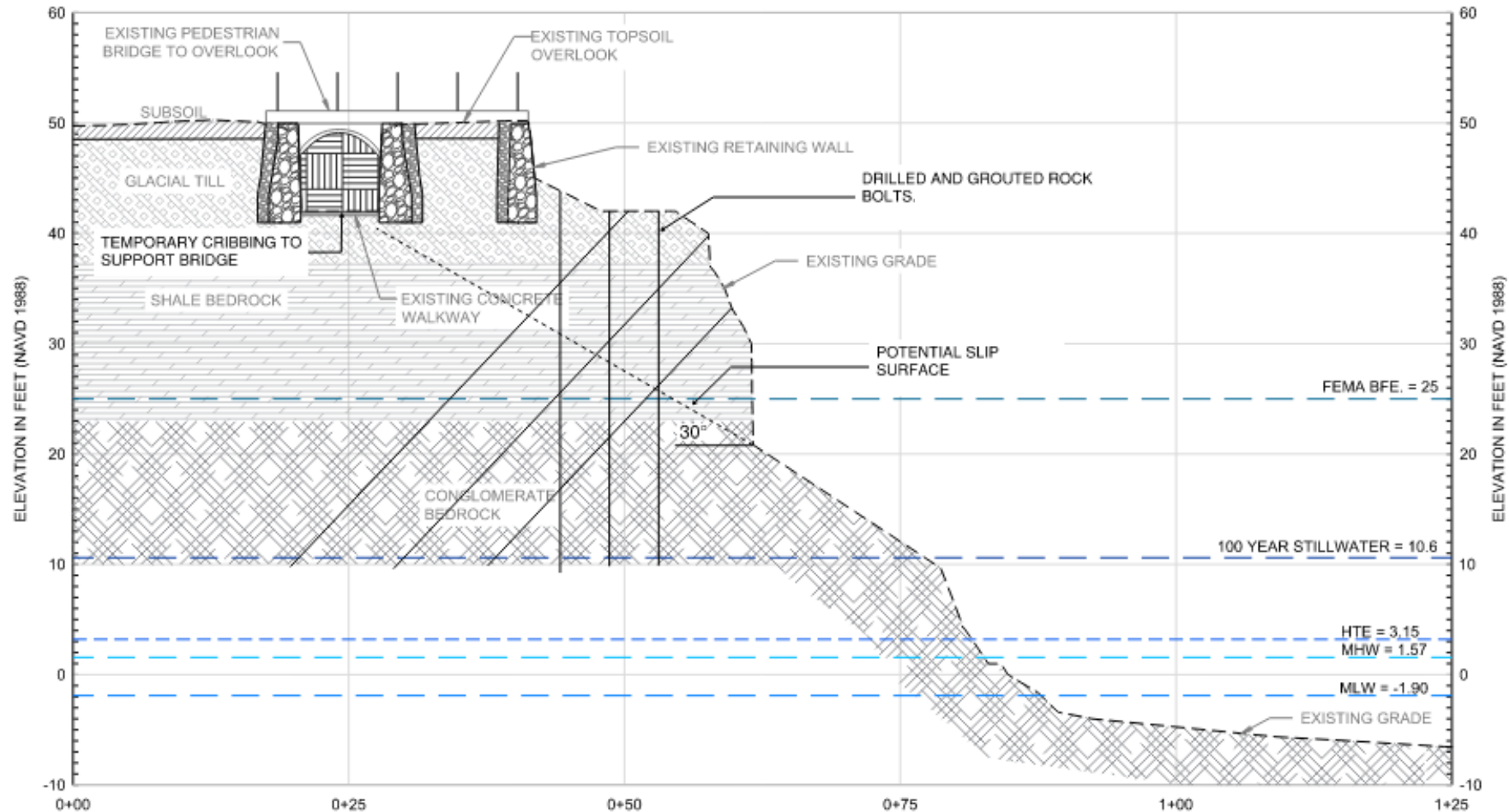
- Provides direct stabilization of the rock mass, improving long-term structural reliability.
- Avoids physical contact with the walls and bridge, minimizing preservation concerns.

Disadvantages:

- A shotcrete façade will not be resilient to wave action and is susceptible to long-term corrosion and deterioration in a marine environment.
- Requires placement of material within the tidal zone.
- Construction equipment access remains limited (particularly in tidal zone), constraining feasible installation methods.
- Accessibility and constructability may require supporting the drill rig on cribbing or suspending it from a crane.
- Requires cribbing of the existing bridge and continuous structural monitoring during construction.
- Bolt locations must be adjusted in the field due to irregular rock-mass geometry.

ALTERNATIVE 7

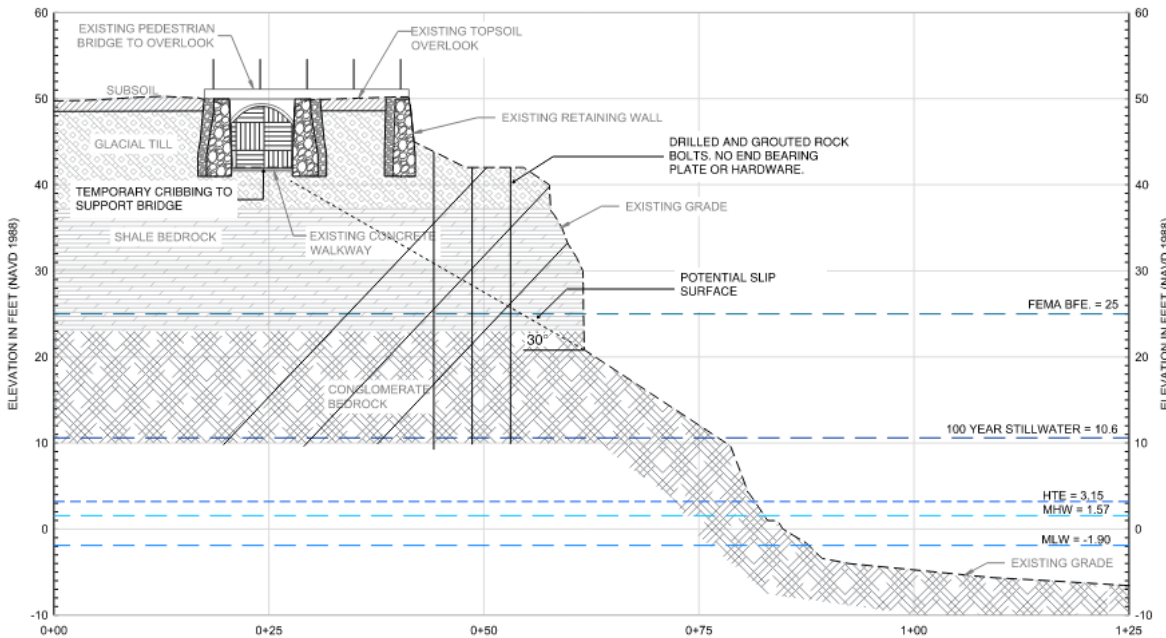
ROCK STABILIZATION



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ALTERNATIVE 7

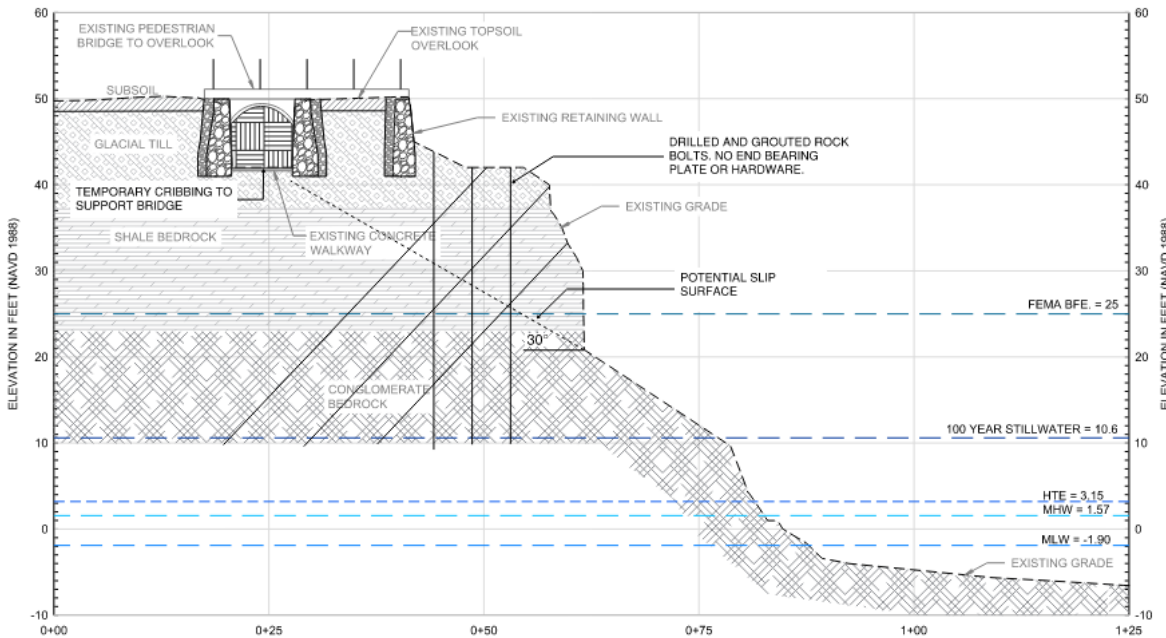
CONSTRUCTION / IMPLEMENTATION SEQUENCE



1. Install temporary cribbing below bridge and establish monitoring program.
2. Drill and grout the rock bolts.
3. Remove temporary cribbing or repair bridge. Course of action will be dependent on monitoring results.
4. Repave and landscape as needed.

ALTERNATIVE 7

ADVANTAGES AND DISADVANTAGES



Advantages:

- Provides direct stabilization of the rock mass, improving long-term structural reliability.
- Avoids physical contact with the walls and bridge, minimizing preservation concerns.
- Bolts are fully grouted, leaving minimal visible surface hardware and preserving existing site aesthetics.
- Does not require placement of material within tidal zone.
- Hand installation is an option

Disadvantages:

- Accessibility and constructability may require supporting the drill rig on cribbing or suspending it from a crane.
- Requires cribbing of the existing bridge and continuous structural monitoring during construction.
- Bolt locations must be adjusted in the field due to irregular rock-mass geometry.

SUMMARY OF ALTERNATIVES

Alternative	Disadvantages					Advantages		
	Difficult Access for Equipment	Potential Permitting Challenges	Does not Stabilize Rock Mass	No Increase in Bridge Safety	Visual changes to the bridge/outlook area	No Impacts Below Mean High Water	Low Cost	Construction Duration
1: "Do Nothing"			X	X		X	X	X
2: Permanently Remove Pedestrian Bridge		X	X		X	X	X	X
3: Remove and Replace Pedestrian Bridge	X		X			X		
4: Drilled Foundation Below East Abutment Without Bridge Removal	X		X			X		
5: Remove Bedrock and Extend Revetment	X	X	X		X		X	X
6: Soil/Rock Nails with Shotcrete Facing	X	X			X			
7: Rock Stabilization	X					X	X	X