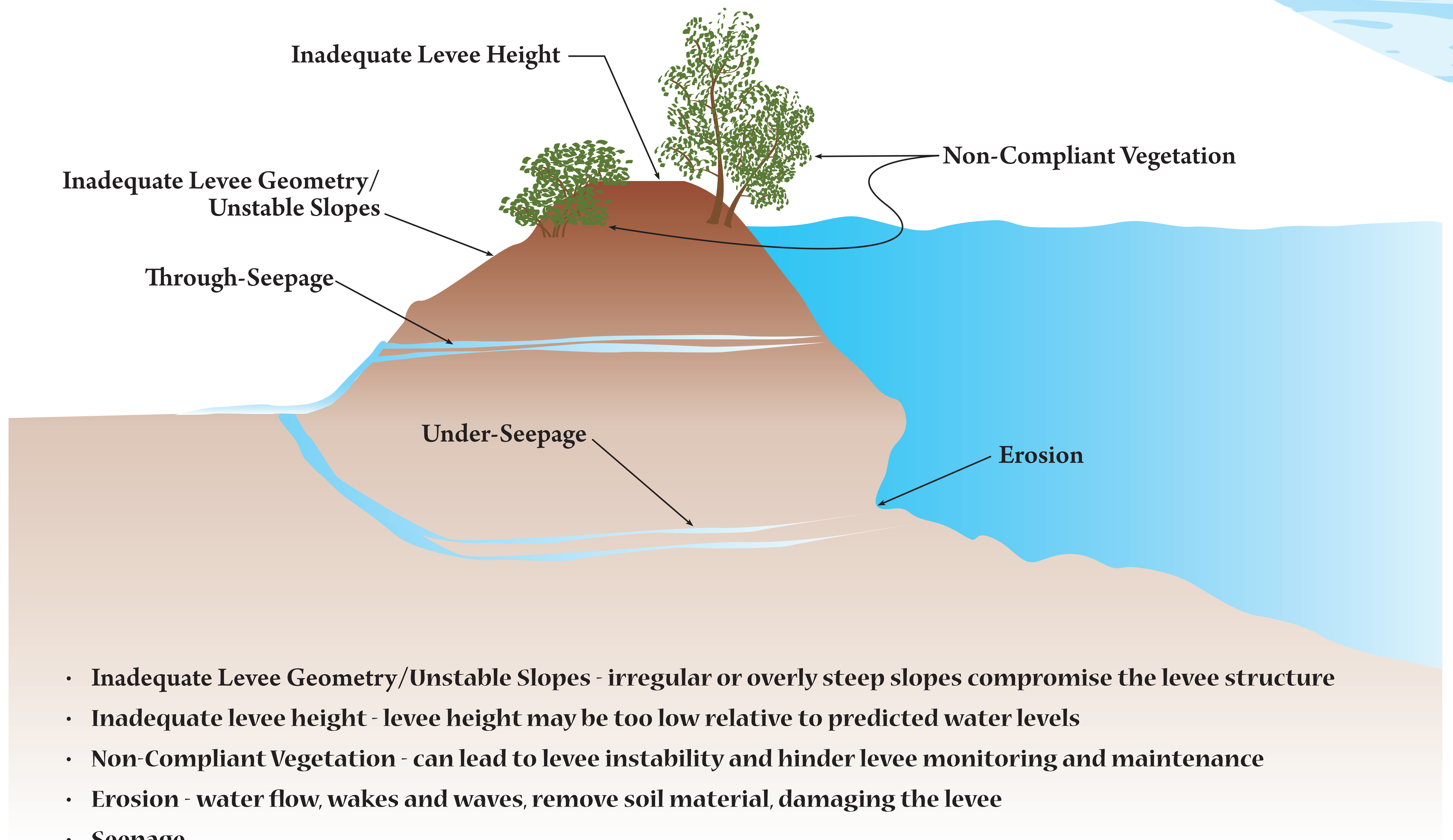


Typical Levee Deficiencies

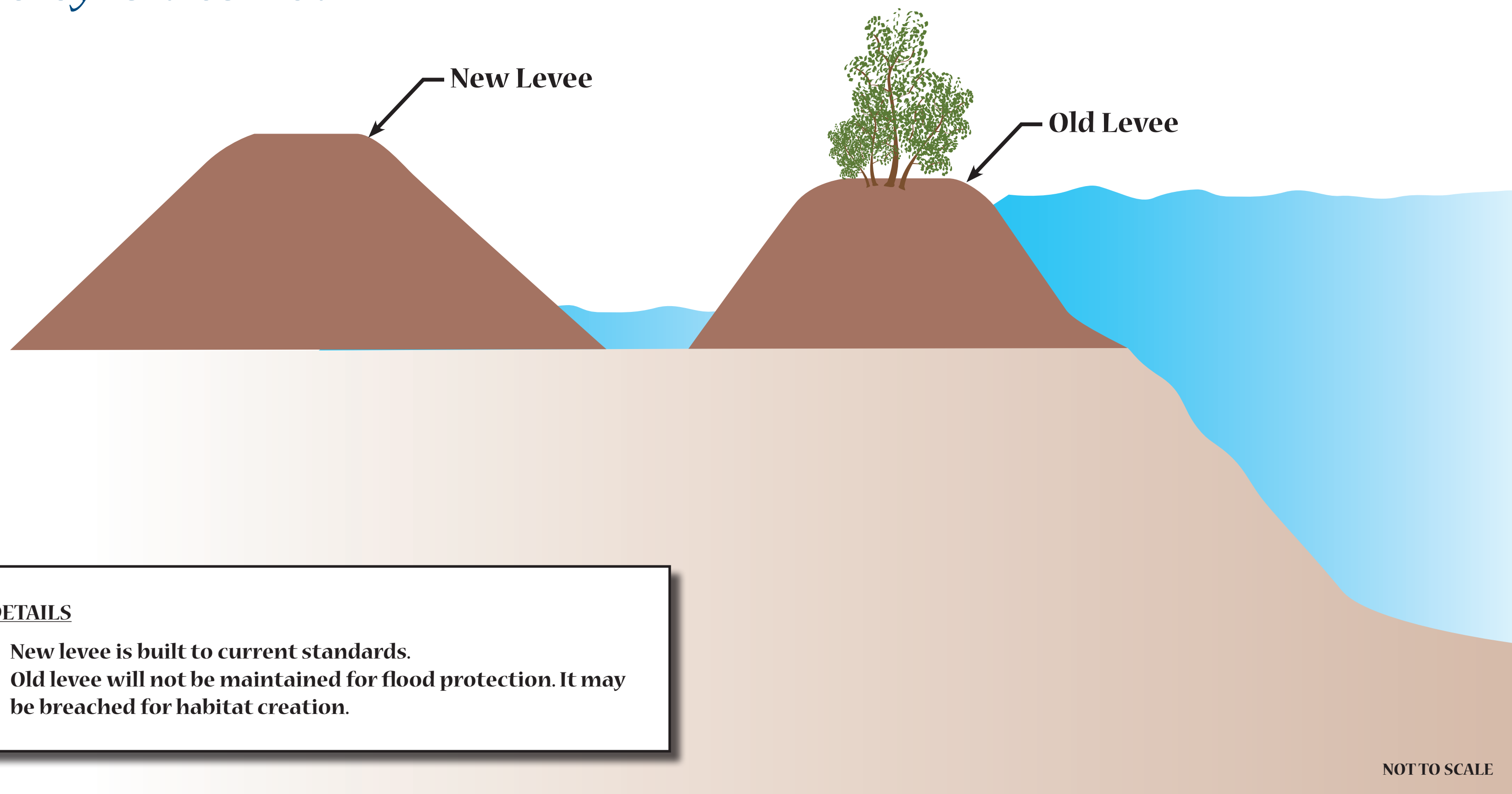


- **Inadequate Levee Geometry/Unstable Slopes** - irregular or overly steep slopes compromise the levee structure
- **Inadequate levee height** - levee height may be too low relative to predicted water levels
- **Non-Compliant Vegetation** - can lead to levee instability and hinder levee monitoring and maintenance
- **Erosion** - water flow, wakes and waves, remove soil material, damaging the levee
- **Seepage**

Setback Levee

Concept:

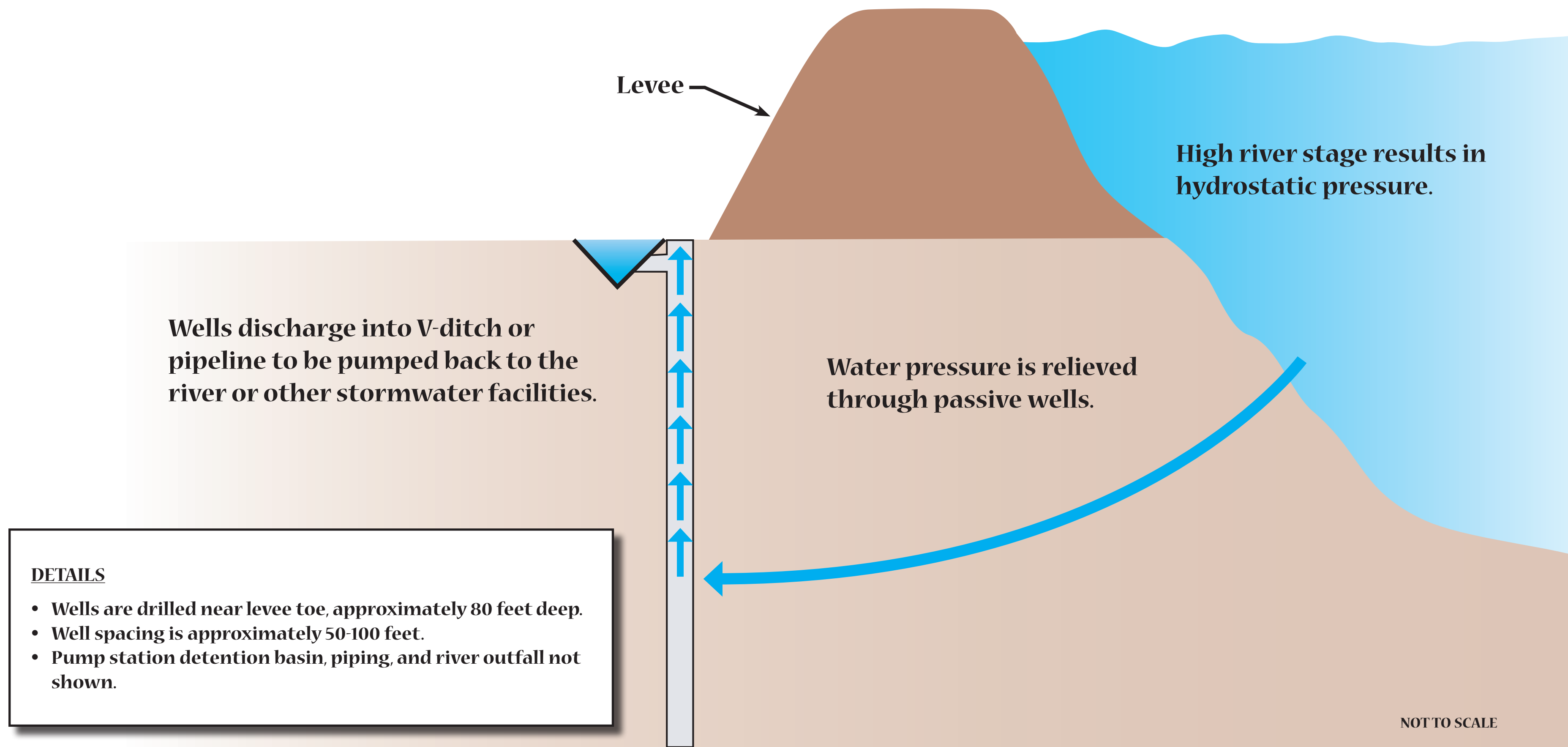
A new levee is built toward the landside of an existing levee where the existing levee is not readily repairable or where more flooding capacity is desired.



Relief Wells

Concept:

Water pressure is relieved via passive wells, which direct water discharge into a collection system.



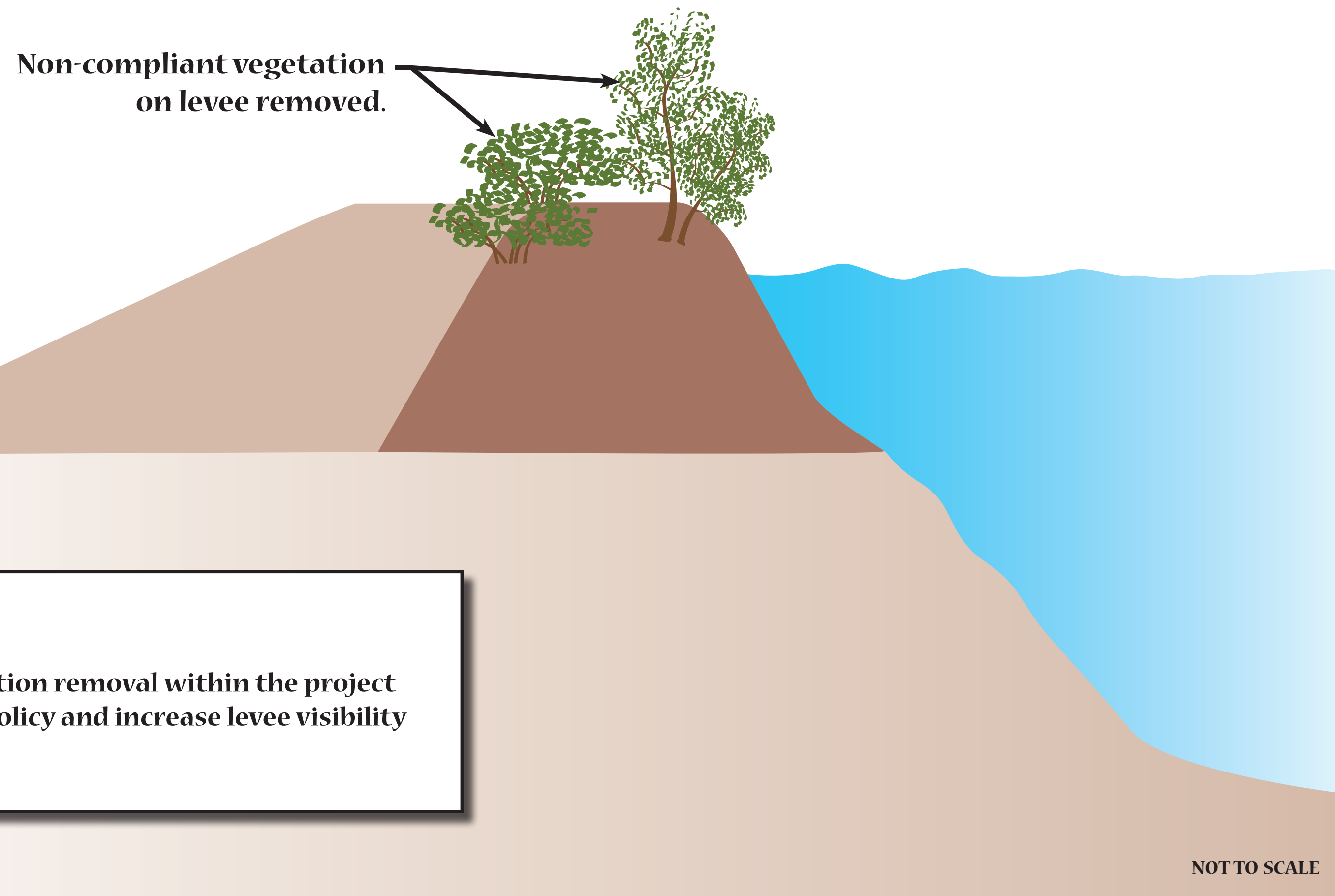
DETAILS

- Wells are drilled near levee toe, approximately 80 feet deep.
- Well spacing is approximately 50-100 feet.
- Pump station detention basin, piping, and river outfall not shown.

Vegetation Removal

Concept:

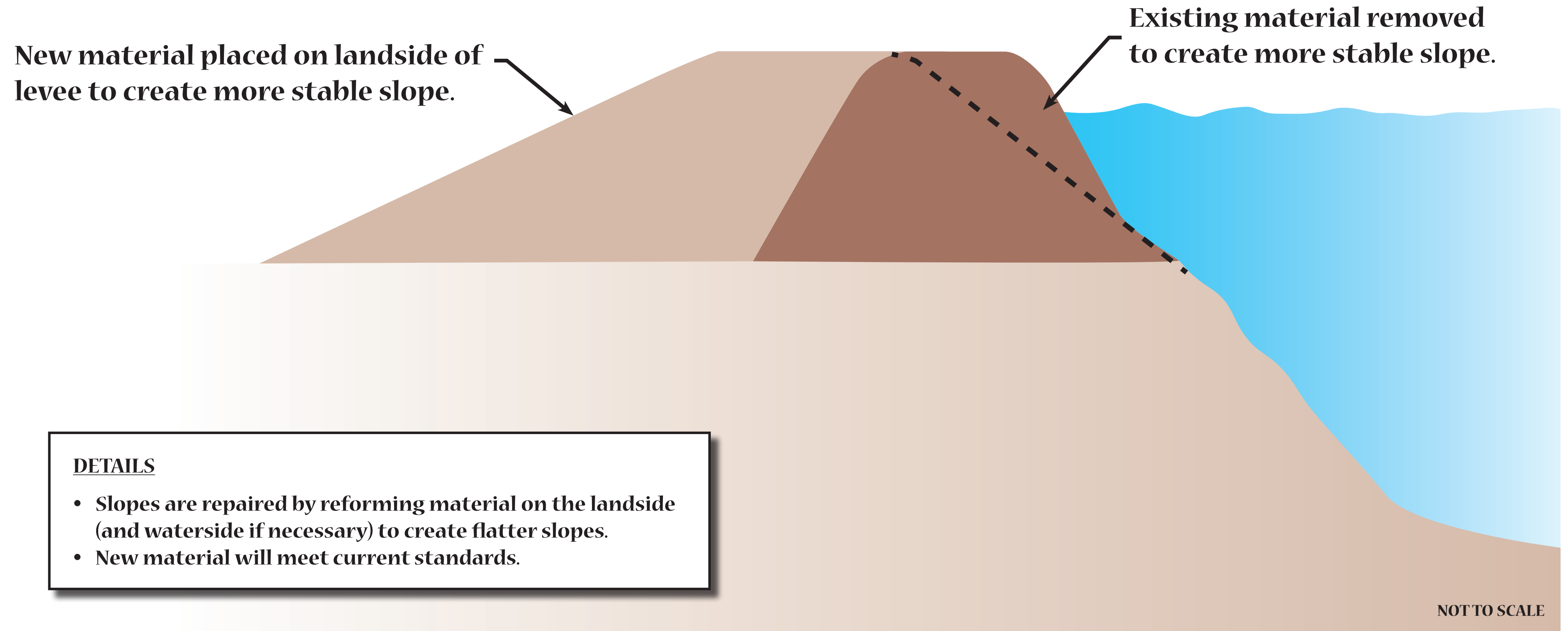
Non-compliant vegetation may inhibit levee maintenance and performance monitoring.



Slope Flattening

Concept:

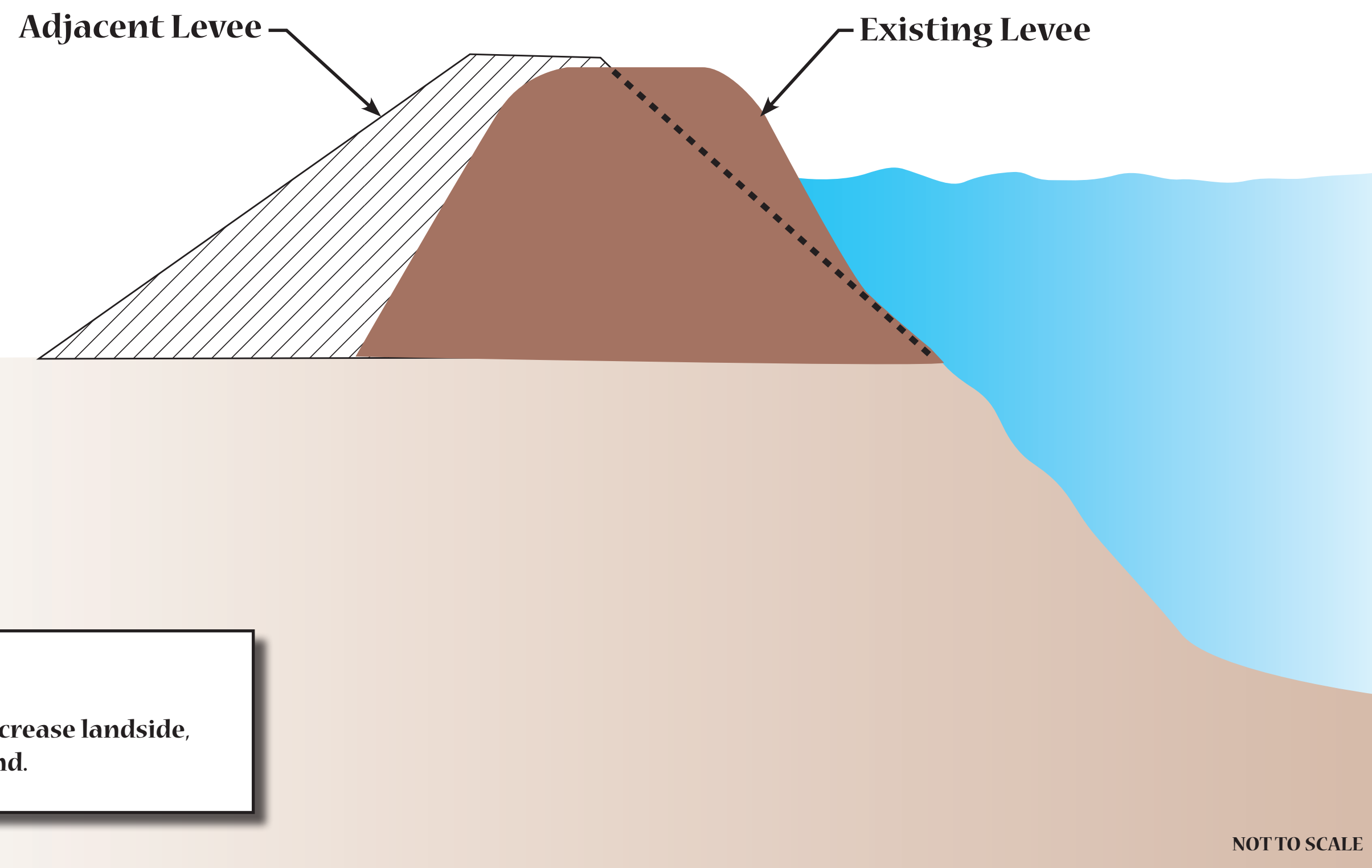
Flatter slopes are more stable and less susceptible to erosion.



Adjacent Levee

Concept:

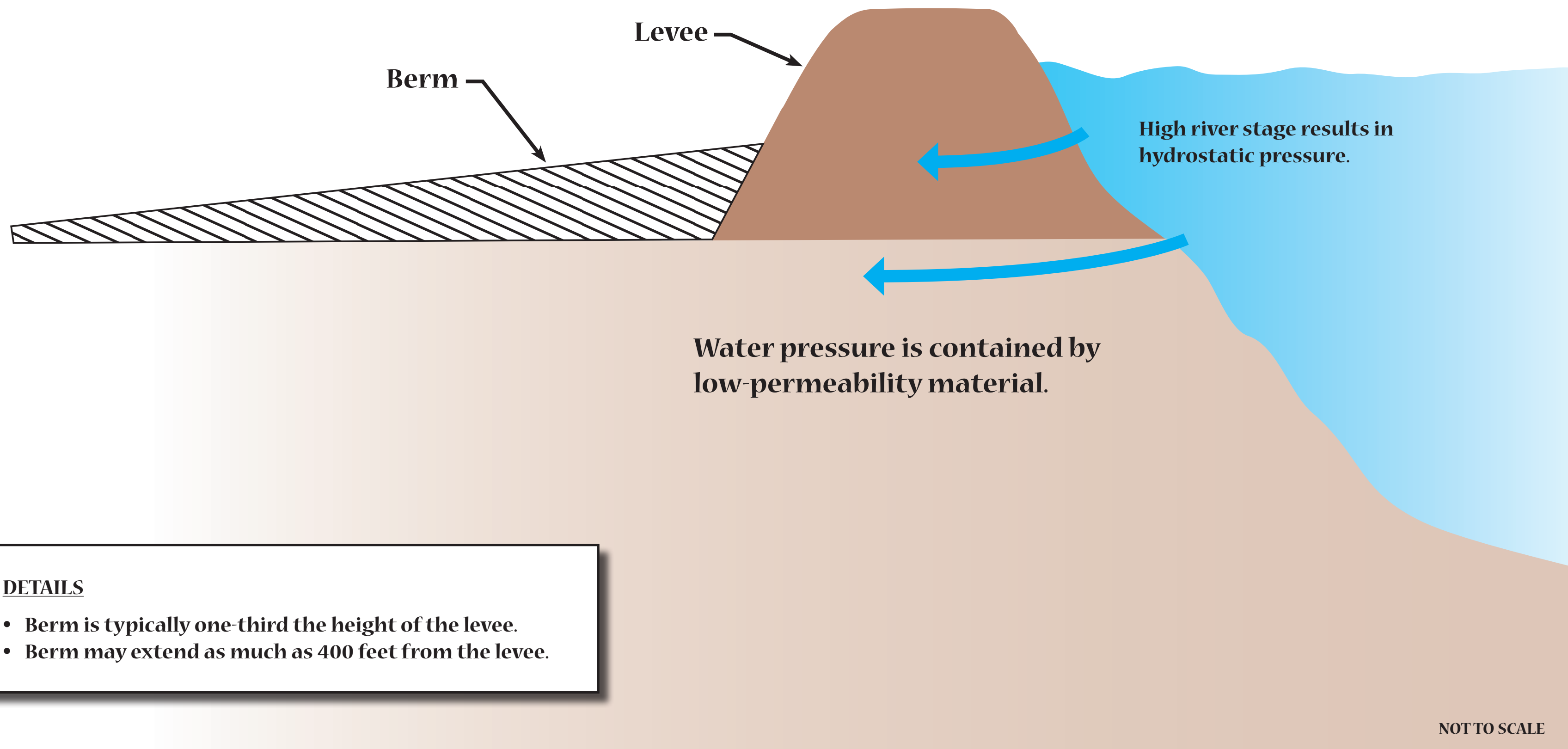
A new embankment strengthens the existing levee and enlarges the slopes.



Seepage Berm

Concept:

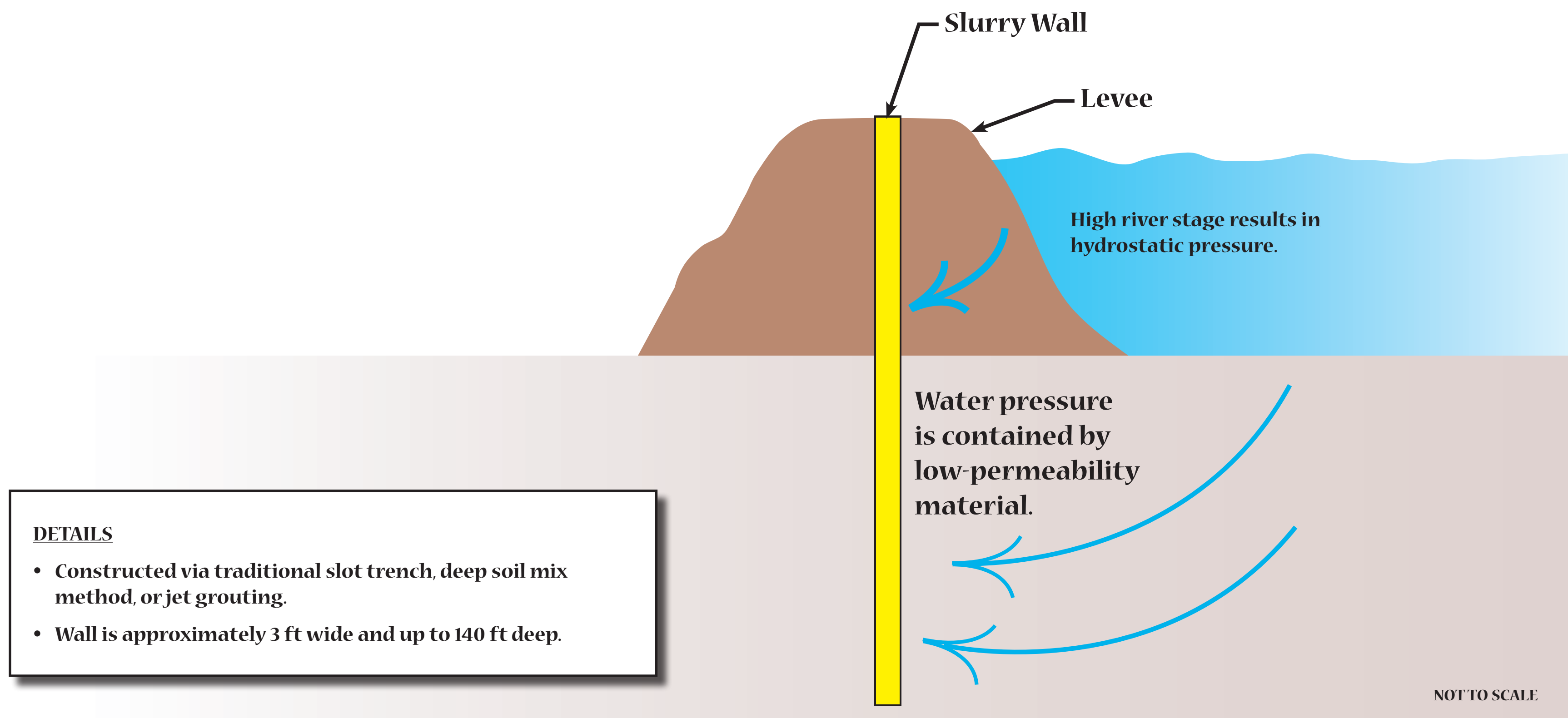
Water pressure is contained and dispersed by a thickened soil layer.



Slurry Cutoff Wall

Concept:

Water pressure is contained and dispersed by a low-permeability wall constructed within the levee cross section.



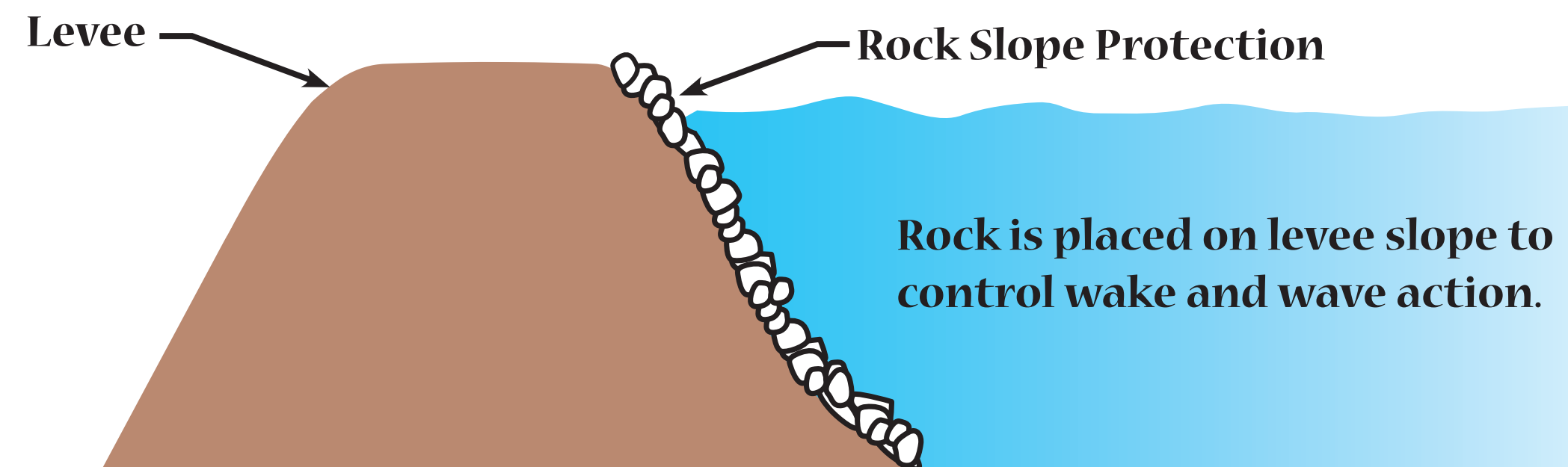


South of Davis Road on South River Road looking southeast at the waterside slope of the levee, on which the Southport Sacramento River EIP is proposed to be implemented.

Rock Slope Protection

Concept:

Water-side erosion is prevented by placement of rock.



DETAILS

- Rock is typically 8 to 18 inches in diameter, placed in a 12 to 24-inch layer.
- Rock could be covered by soil and/or non-woody vegetation.

Recreation Opportunities

Where it is compatible with flood risk-reduction actions and operations, WSAFCA is considering recreation and non-motorized-transport improvements on, adjacent to, or near the levee. While the highest priority of the Southport Sacramento River EIP is to increase flood protection, WSAFCA also is investigating potential recreation corridors that could provide improved or new opportunities for outdoor recreation and healthy, sustainable transport options to destinations such as parks and recreation facilities, schools, community centers, and jobs.

South River Road, which runs along the top of the levee, is the gateway to many recreational settings in the project area. Most of the levee supports a mature riparian forest that is attractive to recreationists. The roadway is presently a rural street with narrow shoulders and no designated bike lane. However, scenic quality and relatively light vehicular traffic make the route a popular bicycling corridor. The road also provides easy access to the Sacramento River bank, making fishing a common and prized recreation activity along the levee. Pedestrians, joggers, and equestrians also use South River Road.

Maintaining and increasing accessibility to these popular settings are two criteria that will be used to measure options for recreation and alternative transportation along the Sacramento River's edge. Potential recreational facilities would be available for walking, jogging, biking, and, where appropriate, equestrian use. Other recreation features may include parking or staging areas, seating, picnic areas, and adventure play areas. These features may be further developed where the recreation corridor forms the edge of a park. Improved access to the river would be evaluated at locations that are compatible with levee maintenance, floodway operations, and ecosystem functions.

Recreation features to be proposed as part of each flood risk-reduction alternative will be defined through the design and environmental processes and will be available for public review and comment when the draft EIS/EIR is released in 2012.

Ecosystem Restoration Opportunities & Mitigation

While the highest priority of the Southport Sacramento River EIP is to increase flood protection, the project would also allow WSAFCA to partially or fully mitigate for many of the project's environmental impacts onsite. In addition, it may provide an opportunity for restoration of historical habitat within the project area.

Potential Habitat Restoration Activities

The goal of restoration design is to create self-sustaining, high-value habitats. As part of the Southport Sacramento River EIP, habitat would be created to replace that which may be lost during construction; this minimum level of habitat creation is required under NEPA and CEQA and is considered mitigation. Where space within the project area is available, additional restoration could be undertaken that would restore habitat to historical conditions. Likely objectives for habitat mitigation and restoration include:

- Mitigation for temporary and permanent impacts on protected land cover types
- Mitigation for temporary and permanent impacts to special-status species and potential habitat for these species
- Restoration of portions of the historic Sacramento River floodplain through construction of a setback levee (under Alternative 2)
- Restoration of riparian and oak woodland habitat on the restored floodplain
- Restoration of grasslands on the restored floodplain, setback levee, seepage berm, and other disturbed areas

The amount of onsite habitat mitigation and restoration that could be implemented would depend on the alternative selected. Preliminary design estimates suggest that Alternative 1 and Alternative 3 may not have sufficient project area to fully mitigate for impacts to riparian, wetland and grassland (i.e., Swainson's hawk foraging) habitats, and offsite mitigation could be required.

Alternative 2 may be largely self-mitigating because of its setback levee component, and provide opportunity for additional restoration. The floodplain could be widened considerably and the riparian corridor increased with plantings of native vegetation. Created floodplains under Alternative 2 would provide habitat not only for vegetation, but also for native fish and other species as a result of inundation in the low-lying floodplains.

Potential Environmental Issues

Implementation of the proposed Southport Sacramento River EIP will likely affect both the natural and built environment. The effects will be evaluated and disclosed in the EIS/EIR. Resources analyzed in the EIS/EIR will include, but are not limited to:

- **Aesthetics**
- **Biological resources**
- **Hazards and hazardous materials**
- **Socioeconomics & Environmental justice**
- **Agriculture**
- **Population & housing**
- **Cultural resources**
- **Mineral resources**
- **Hydrology/water quality**
- **Public services**
- **Transportation/traffic**
- **Air quality**
- **Geology & soils**
- **Land use/planning**
- **Recreation**
- **Noise**
- **Utilities/service systems**

About the Scoping Process

Scoping is a process used to inform the public of a proposed activity. It provides the public an opportunity to comment and share insight and local information related to the range of alternatives being analyzed, the effects of those alternatives, and/or issues of concern related to the proposed activity.

Scoping can be particularly informative in a flood risk-reduction project because the local residents could have knowledge about the performance of a levee that the agencies are unaware of, such as locations of under-seepage or boils or areas of general poor levee performance.

The comments received from public scoping will be used to inform the development of the alternatives; define the environment and resources potentially affected by the alternatives; and analyze the effects resulting from the alternatives. The affected environment broadly includes physical, biological, and social and economic topic areas. Effects of both project construction and long-term operations and maintenance are identified and analyzed.

About NEPA and CEQA

The National Environmental Policy Act (NEPA) is a Federal law enacted to ensure a proposed activity's potential effects on both the natural and built environments are analyzed and disclosed to the public. Additionally, analysis of the activity's alternatives and development of mitigation measures to reduce effects are required.

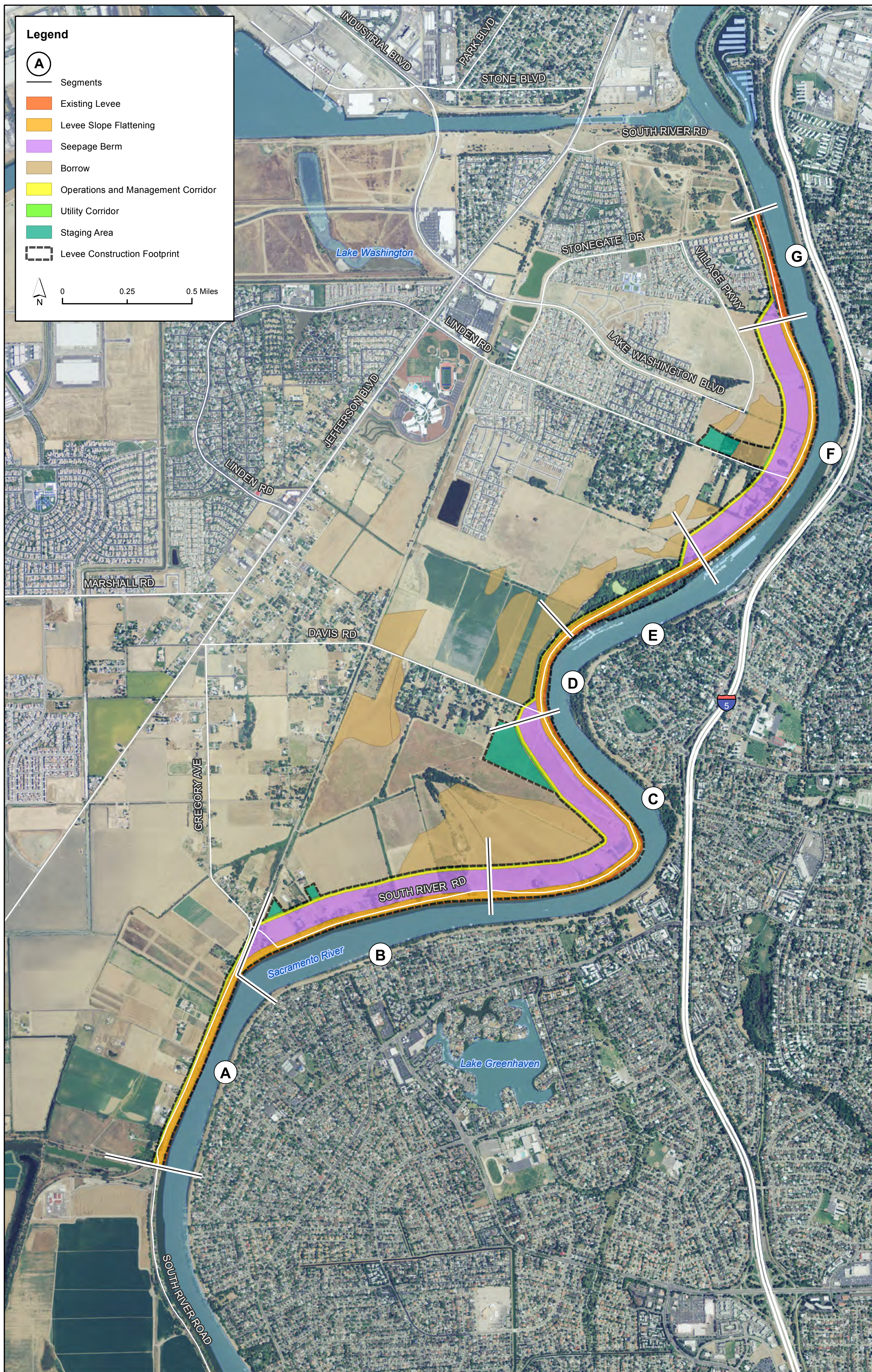
This information is presented in an Environmental Impact Statement (EIS). Similarly, the State of California, under the California Environmental Quality Act (CEQA), requires disclosure in an Environmental Impact Report (EIR). These documents disclose the effects of an activity to agencies and the public and can serve as a decision-making aid for governing bodies.

While WSAFCA, a local agency in the state, is proposing the project, the USACE has jurisdiction over the Federal levee WSAFCA is proposing to alter. Therefore, the Southport Sacramento River EIP must comply with both NEPA and CEQA. The efficient way to comply with both laws is to develop a joint EIS/EIR.

A joint EIS/EIR is prepared when there is both Federal and state agency interest in an activity, and/or when a state agency needs permission to perform an action under Federal jurisdiction. The development of the Southport Sacramento River EIP draft joint EIS/EIR is underway and the document is scheduled for release in 2012.

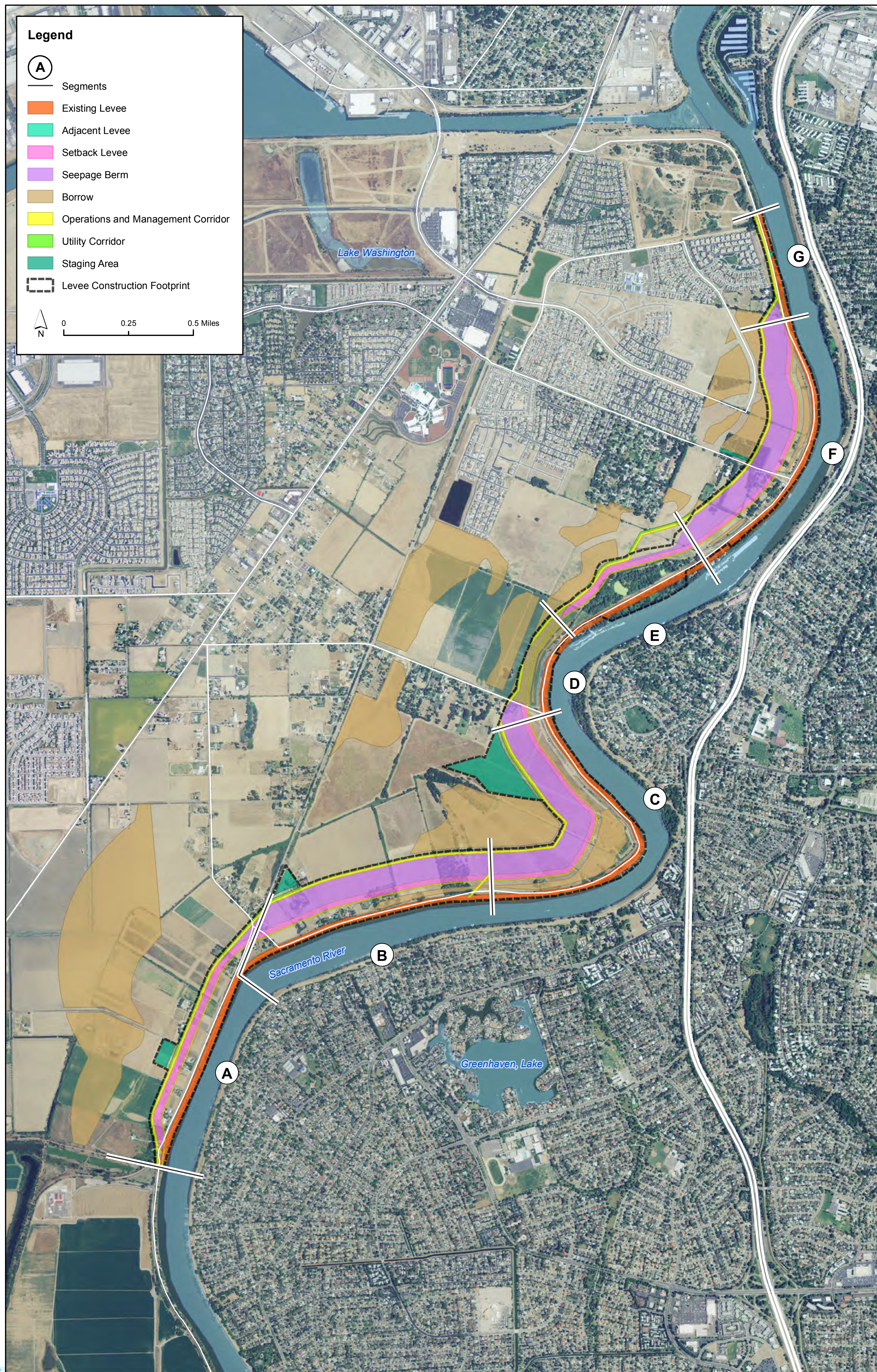
Alternative 3

Alternative 3 involves the contouring of the Sacramento River levee to alleviate over-steepened banks while maintaining South River Road where it presently is, atop the existing levee. A cutoff wall is proposed in Segments A, D, E, and G. A landside seepage berm is proposed in Segments B, C, and F. Existing vegetation on the levee would be removed within the construction footprint.



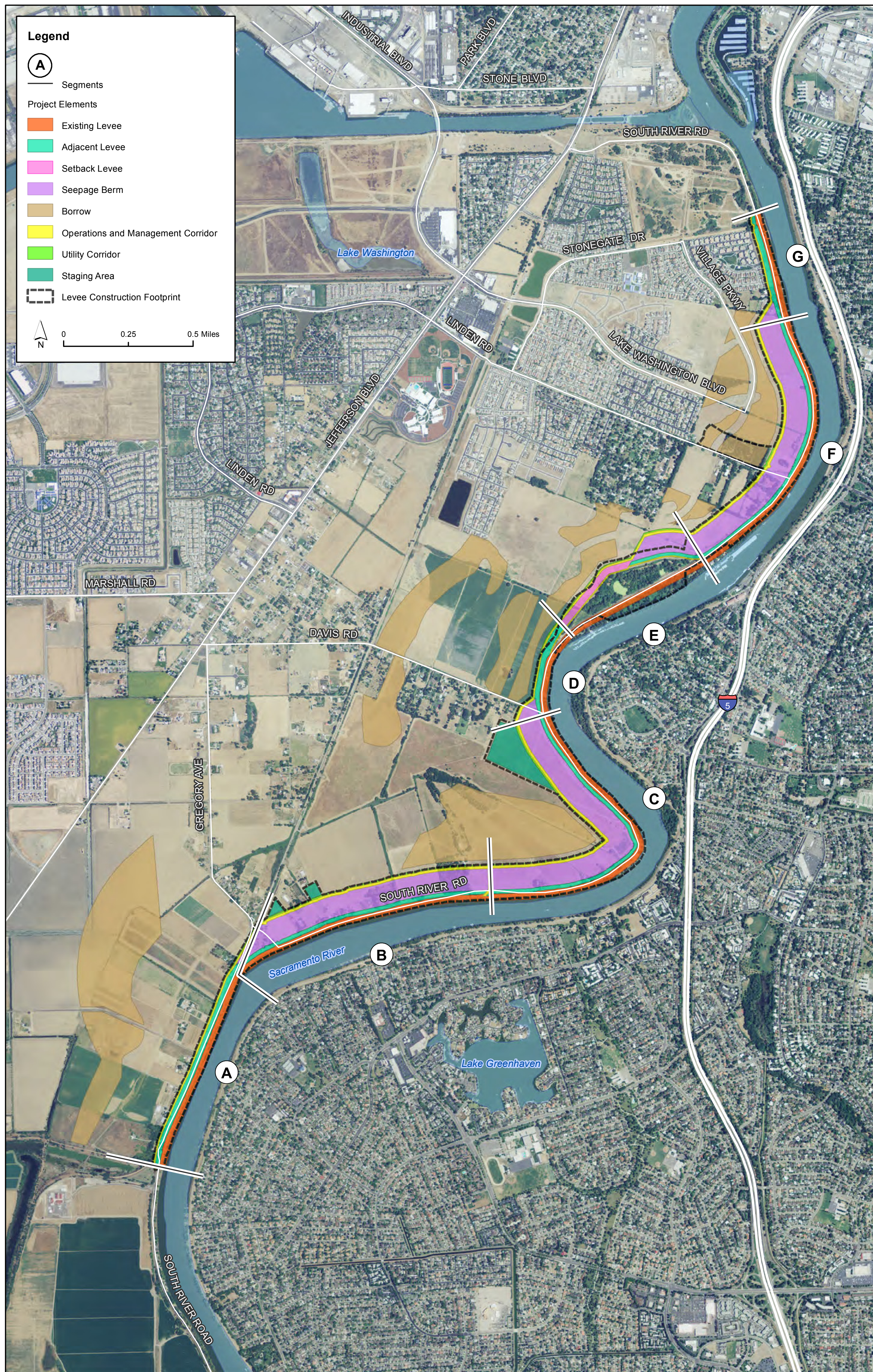
Alternative 2

Alternative 2 involves the construction of setback levees in Segments A–F and breach and degrade of the existing levee for the purpose of historical ecosystem restoration. A setback levee with a cutoff wall is proposed in Segments A, D, and E. A setback levee with a landside seepage berm is proposed in Segments B, C, and F. An adjacent levee with a cutoff wall is proposed for Segment G. South River Road would be relocated landside of the setback levee. Portions of the existing Sacramento River levee would be removed to allow for floodplain inundation.



Alternative 1

Alternative 1 involves the construction of adjacent levees, while maintaining South River Road where it presently is, atop the existing levee. An adjacent levee with a cutoff wall is proposed in Segments A, D, E, and G. An adjacent levee with a landside seepage berm is proposed in Segments B, C, and F. Existing vegetation on the levee would be removed within the construction footprint.





On South River Road, looking east and across the river toward Sacramento's Little Pocket neighborhood. This levee stretch is included in the 6.4 miles proposed for upgrades under the Southport Sacramento River EIP.