United States Department of the Interior

FISH AND WILDLIFE SERVICE
Imperial National Wildlife Refuge
P.O. Box 72217
Yuma, Arizona 85365

March 8, 2006

Ms. Marjorie Blaine
Senior Project Manager
Arizona Section, Regulatory Branch
Los Angeles District
5205 E. Comanche Street
Tucson, AZ 85707

Dear Ms. Blaine:

The information included in this letter is intended to serve as preconstruction notification for activities covered under Nationwide Permit Number 27: Stream and Wetland Restoration Activities for the Imperial Ponds project proposed on Imperial National Wildlife Refuge.

Project Purpose and Description

Imperial National Wildlife Refuge in conjunction with the Multi-Species Conservation Program and the Bureau of Reclamation plan to redesign and expand the Imperial Ponds (previously referred to as the "DU2 Ponds") to improve functionality and provide additional backwater habitat for endangered native fish, marsh birds, and migratory waterfowl. Specific design goals are as follows:

- Reconstruct existing ponds to create backwaters that contain the physical, chemical, and biological conditions required to support endangered native lower Colorado River (LCR) fishes in a healthy condition.
- Expand (within the 96 acres of the site) surface area and/or marsh habitat. Design (easily maintainable) features with a target life of at least 50 years.
- Design system to increase existing knowledge of managed habitat for endangered native LCR fishes.
- Enhance our ability to more effectively manage 104 acres of agricultural and native forest areas.

The proposed project is summarized in the attached, *Imperial National Wildlife Refuge, Imperial Native Fish Habitat Reconstruction, Design Workshop Final*

Report[1], hereafter referred to as "Conceptual Design". The conceptual design established the overall criteria for the general construction of the project. The report contains extensive background discussion, the rationale for the final design, and descriptions of the proposed habitat features for the site. Throughout this letter, the conceptual design will be referred to for more detailed discussion, as appropriate.

As shown in Figures 2-8, the design of the ponds replicates that put forth in the conceptual design. The detailed design drawings provide design elevations that translate into quantities of material that must be excavated to create the ponds.

Site Description

The Imperial Ponds project is located on Imperial NWR to the east of the Colorado River, near River Mile 59, just north of Martinez Lake (Figure 1). The project area is bounded on all sides by Imperial NWR lands which are restricted from public access. The project has no direct inflow connection with the mainstem of the Colorado River, or any other water body. As currently constructed, a negligible amount of subsurface water exchange occurs, although the ponds are in close proximity to the river.

Location of Proposed Excavation, Dredging and Vegetation Removal

The design water surface elevation will be between 186 and 187 ft using the 1929 National Geodetic Vertical Datum (NGVD). To create the desired pond configuration described in the figures, 650,000 cubic yards must either be excavated or dredged from the existing pond footprint. The location of the excavation/dredging is shown in the Proposed Site Design, Figure 2.

Incorporation of Excavated Materials into the Landscape

No excavated materials will be discharged into any waters of the U.S. Sediments consisting of sands and silts within the project area will be excavated or dredged and incorporated over a series of intensively managed agricultural and riparian forest fields, totaling approximately 104 acres. These fields are labeled as the "Excavated Materials Fill Area" with a blue boundary on the plan view drawing, Figure 3. The field areas will be raised above the shallow, saline groundwater, equipped with a new irrigation and drainage system, and subdivided into smaller, more manageable fields. The total dredging volume for the project will be about 650,000 cubic yards of material, which will result in raising the fields between 2 and 5 feet.

We expect these efforts to improve water efficiency and drainage, enhance flushing ability for leaching salts, and result in the overall improvement of growing crops and native cottonwoods and willows, as has been accomplished with similar riparian fields within the same habitat management area. (Additional discussion about why these fields were selected for fill is detailed in the

[1] Reclamation. 2005. *Imperial National Wildlife Refuge, Imperial Native Fish Habitat Reconstruction Design Workshop.* Final Report. July 11, 2005. Boulder City, NV. 36 pp.

conceptual design[2]).

When completed, between one third and one half of the fields will be converted to native riparian habitat types (including but not limited to cottonwood and/or willow), as defined by the LCR MSCP[3]. The remainder of this area will be maintained as seasonal moist soil units with crops grown for migratory waterfowl. (Figure 3). The riparian habitat fields will then be evaluated for credit under the LCR MSCP, and managed appropriately, along with the rest of the LCR MSCP-created habitat type at the site. Maintenance dredging or excavating may be conducted as frequently as every 10 years with the volume of material removed dependent on the amount of sediment accumulation during intervening years.

California Black Rail Habitat

In addition to the construction of the backwater and riparian habitat types, up to 12 acres of marsh are projected in Field 18, initially targeting California Black Rail (*Laterallus jamaicensis coturniculus*), pursuant to the habitat performance criteria for the LCR MSCP. (Figure 3). This field is to the southeast of the ponds, adjacent to Martinez Lake, and currently consists of a sparse mixture of salt cedar and some marginally surviving cottonwoods and mesquite. Similar to the fields adjacent to the ponds, this field is poorly drained, with shallow saline groundwater which prevents the successful establishment of a healthy riparian forest in its current state. Two similar fields to the south of Field 18 are under current management by the refuge as marsh habitat for California black rails and Yuma clapper rails. Field 18 is entirely above the ordinary high water mark.

[2] The conceptual design is available for download on the LCR MSCP website: http://www.usbr.gov/lc/lcrmscp/worktasks/conservationareas/imperialdemo/NativeFishHabitatDesign.pdf

[3] Lower Colorado River Multi-Species Conservation Program. 2004. *Lower Colorado River Multi-Species Conservation Program, Volume II: Habitat Conservation Plan.* Final. December 17, 2004. (J&S 00450.00) Sacramento, CA.

Figure 1. Project Vicinity Map

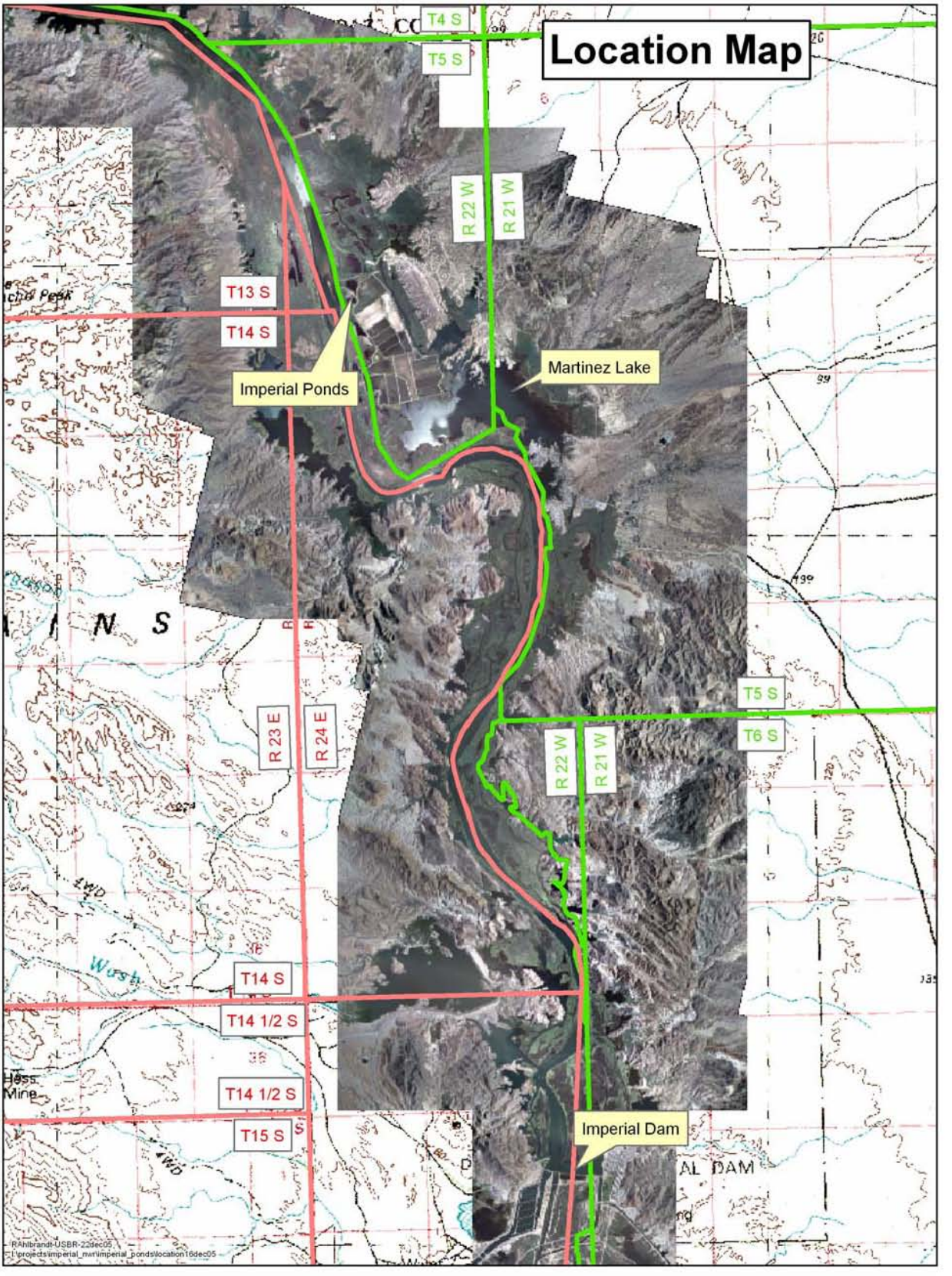


Figure 2. Proposed Site Design

Figure 3. Excavated Materials Fill Areas and Quantity Calculations

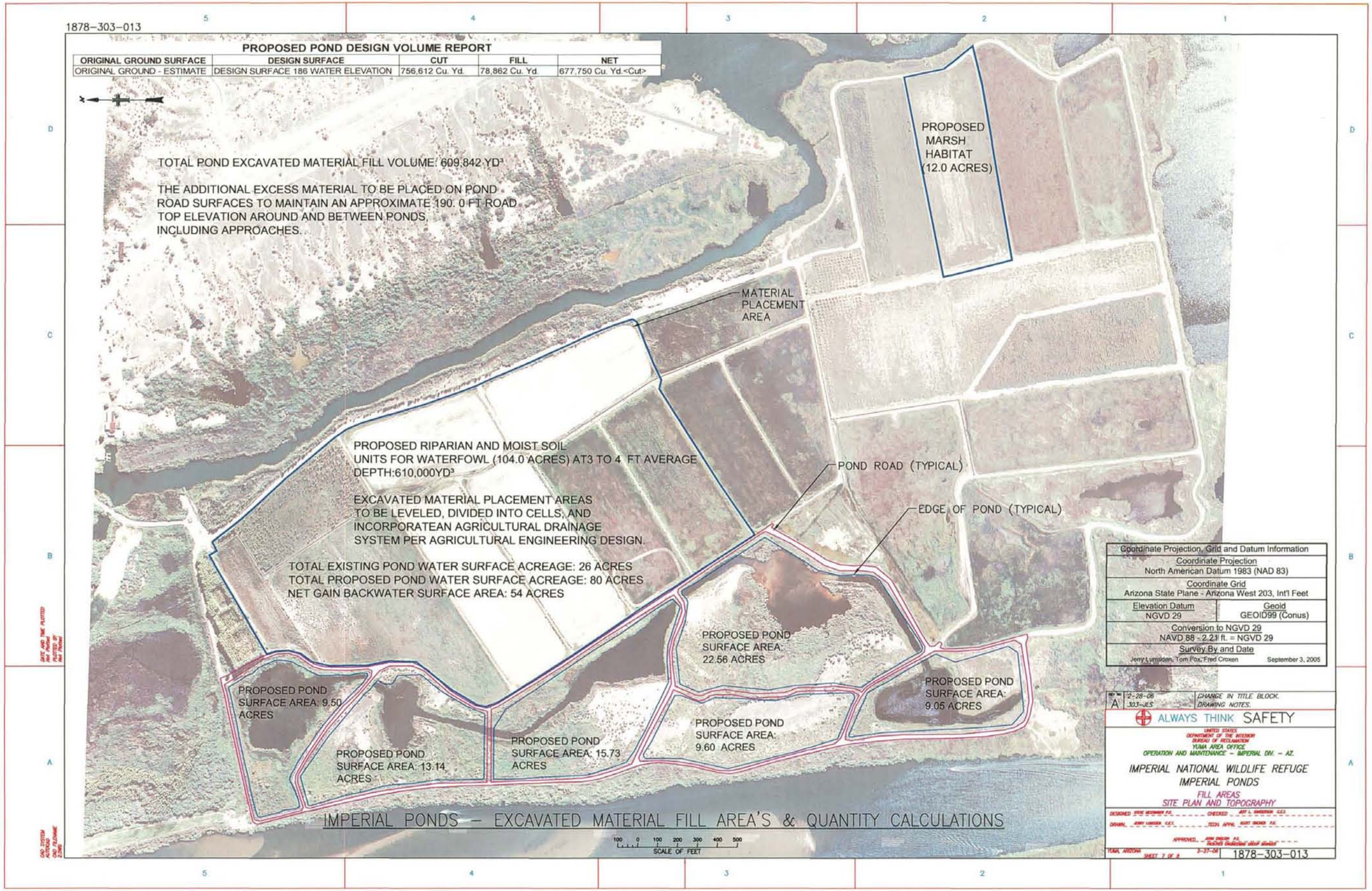


Figure 4. Infrastructure Site Plan

Figure 5. Cross Section Locations

Figure 9. Wetland Impacts Map

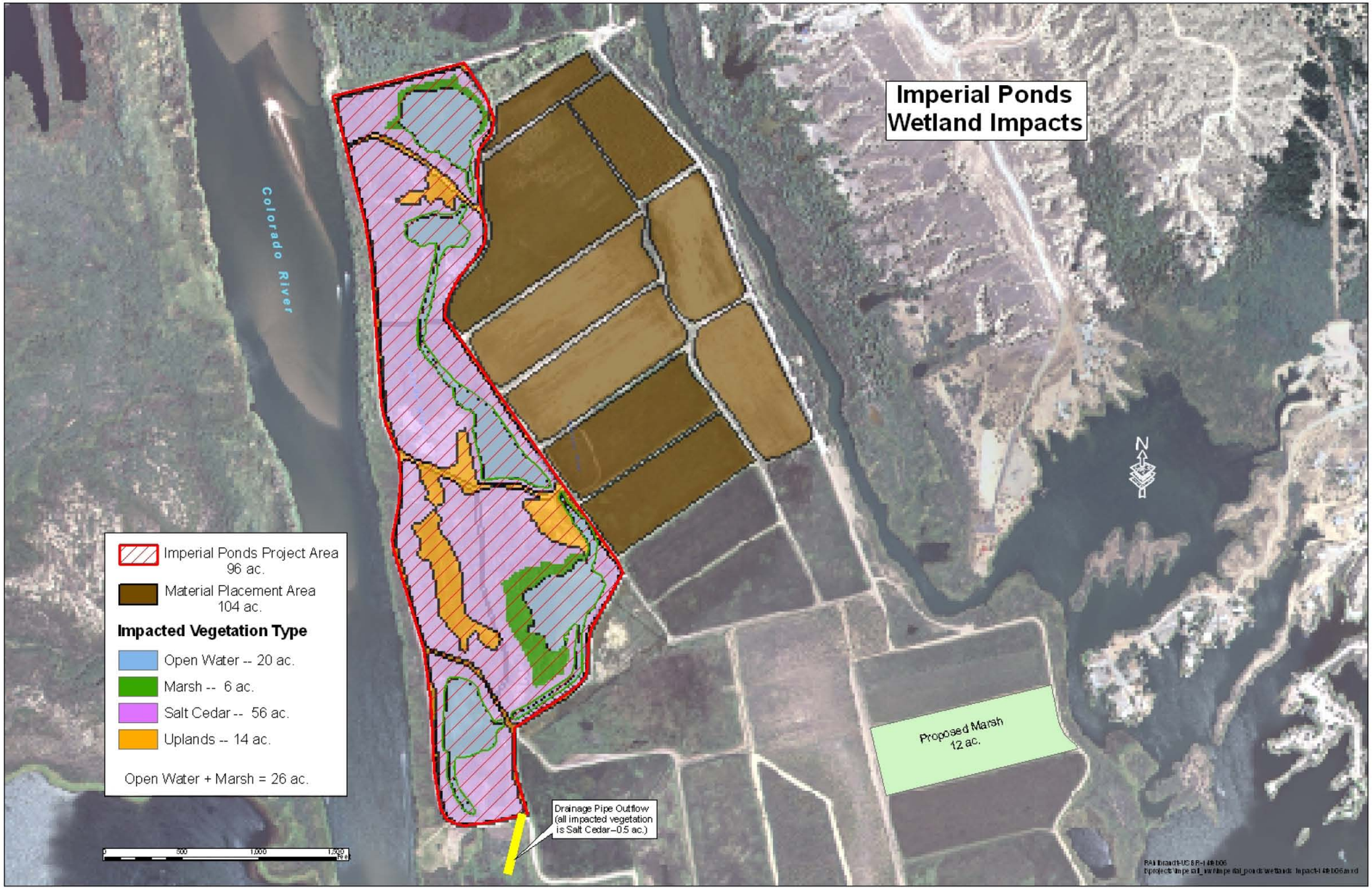


Figure 6. Cross Sections for Ponds 1-3

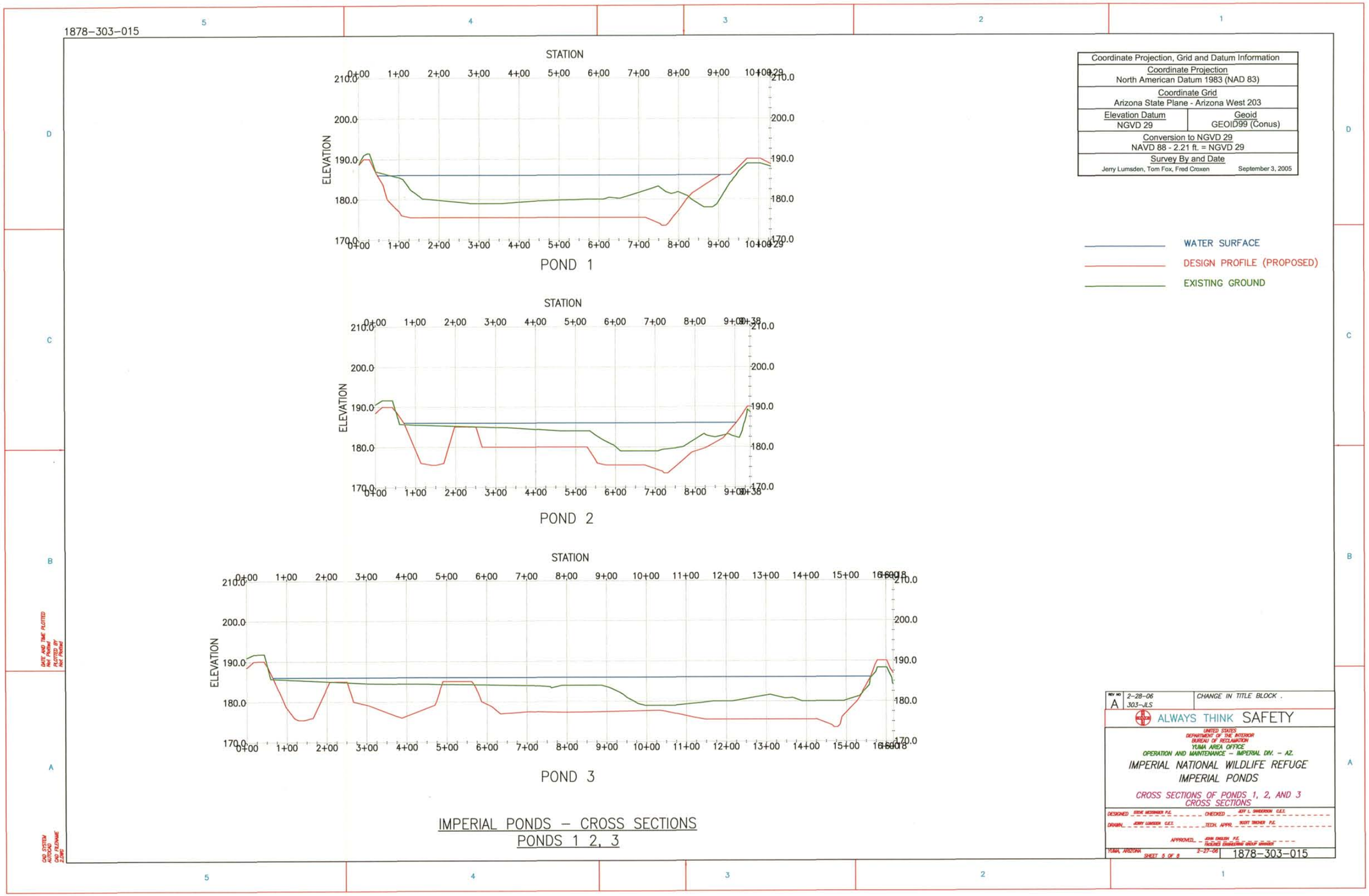


Figure 7. Cross Sections for Ponds 4-6

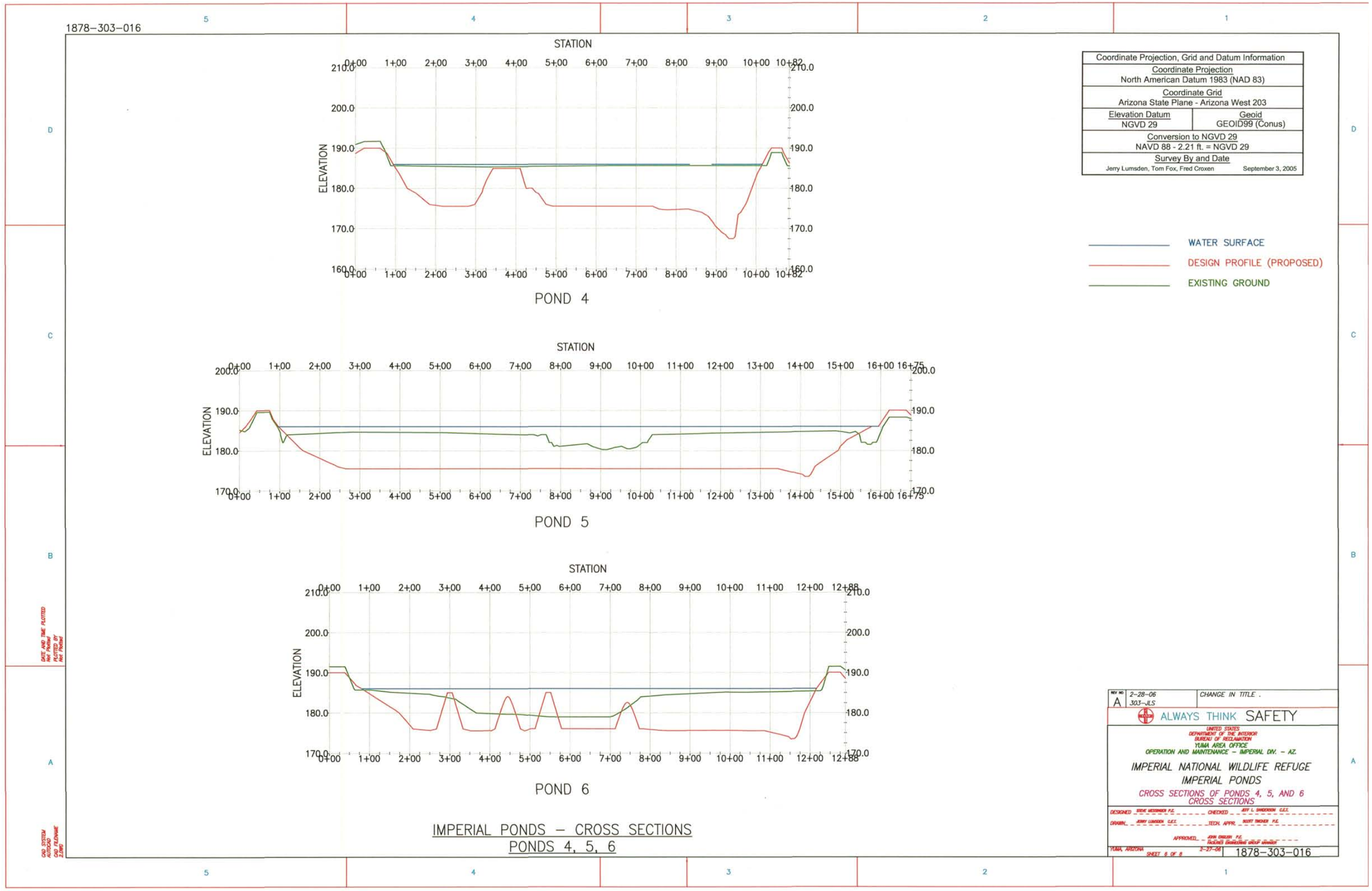
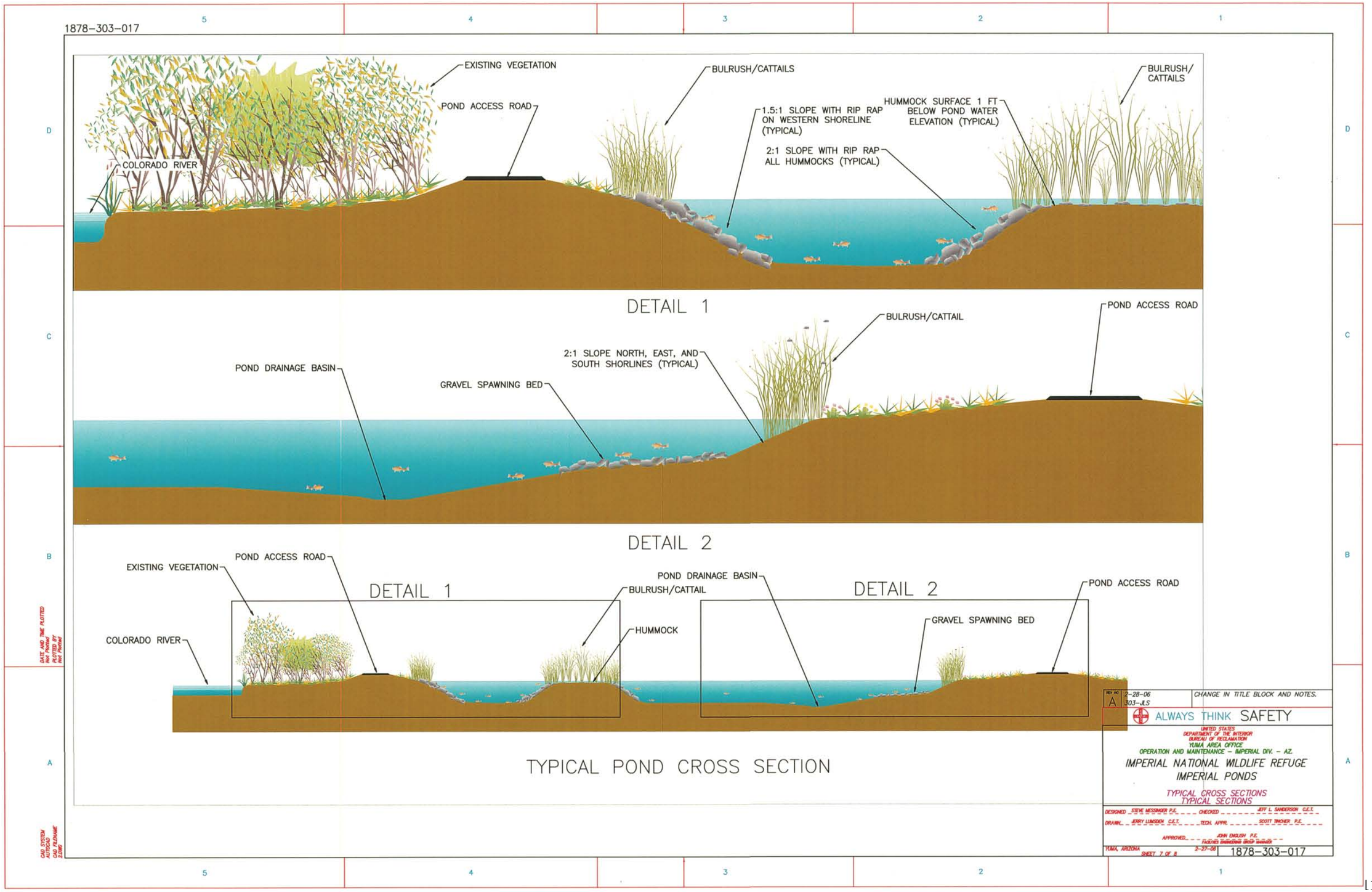


Figure 8 Cross Sections- Conceptual View



Site Preparation

The existing Pond 1 has been dewatered and harvested of all endangered native fish by the Fish and Wildlife Service's Arizona Fishery Resources Office, with dewatering and field assistance from Reclamation. This harvest was completed during three one-week field trips in December 2005 and January 2006, which resulted in the capture and repatriation of 1130 razorback suckers (*Xyrauchen texanus*) (averaging greater than 300 mm). These fish were P.I.T. tagged and released into Martinez Lake at the boat launch at Imperial NWR. These fish were originally stocked as juveniles in the spring of 2004 from captively-reared hatchery stock. Based on previous monitoring efforts, we believe the other ponds contain only non-native fish species, (e.g. warmouth sunfish, *Lepomis gulosus*). No further impacts to native fish are expected as a result of this construction project.

During the September 2005, one Yuma clapper rail (*Rallus longirostris yumanensis*) was observed at Pond 1 by Imperial NWR personnel. In the coming weeks, the remaining ponds will be drained (with the water being discharged into the upland to the south of Imperial Ponds). All ponds will be maintained at minimal levels throughout the period of construction. Emergent vegetation will be allowed to dry completely.

Between mid-February and March 15, 2006, we plan to prescribe the Imperial Ponds area. We completed an intra-service Endangered Species Act consultation on January 31, 2006[4]. This burn will occur prior to the nesting and breeding season for the Yuma clapper rail, and will minimize the volume of vegetated material (salt cedar) in the Imperial Ponds area prior to excavation. At this time, we would expect any existing wetland vegetation to have been destroyed. Those areas will remain unavailable for the duration of construction. We expect that due to the abundance of alternative marsh habitat in the nearby vicinity, short-term impacts to Yuma clapper rails will be minimal.

To the extent possible, material will be removed with land based equipment. During excavation, the material will be moved using an articulated dump truck and if dredging is necessary, the material will be moved using a pipeline. The amount of material that will be removed by each method is dependent on the rate of water seepage into the construction area and the water content of the soil. From previous work in the area, we estimate at least 500,000 cubic yards will be removed using land-based equipment. Equipment mobilization will begin as early as April, 2006. We anticipate excavation will commence as early as June, 2006 and potentially continue until December of 2007.

The remaining material will be removed with a small dredge configured for excavation of small ponds. This material will be pumped to the adjacent upland

[4] U.S. Fish and Wildlife Service. January 31, 2006. Memo: "Prescribed burns on Imperial National Wildlife Refuge at Field 14 and Imperial Ponds, Yuma County, Arizona (Biological Opinion)". Field Supervisor, Arizona Ecological Services Office. Phoenix, AZ.

fields and the water from the dredge operation from the fields will decant back to the ponds, therefore any transported sediment will be contained onsite, and will not impact any other water bodies. We anticipate dredge operations will occur between June 2006 and December 2007.

Construction of Ponds Details

To simplify construction, we plan to temporarily interconnect all of the ponds so that the dredge will only need to be launched and extracted from one location. Once excavation and dredging are complete, the constructed berms that separate the ponds will be closed and each pond will be isolated from the others. In addition, the construction of some of the detailed project features, (e.g. spawning beds) will be performed after excavation/dredging are complete.

Placement of rock and gravel within the Ponds

We will use approximately 10,000 cubic yards of rip-rap to provide structural support to form the steep western slopes of the ponds (1.5:1 slope), and maintain the shape and slopes of the hummocks (2:1 slope). In addition to structural support, the rip-rap along the western slopes are intended to limit cattail encroachment, while providing interstitial cover which has been shown to benefit bonytail[5] (*Gila elegans*).

Approximately 1,800 cubic yards of approximately ½ to 4 inch gravel will be required to construct the spawning beds within the ponds. Construction of boat access points (for fisheries and water quality monitoring) will require the placement of approximately 200 additional cubic yards of approximately ½ - 4 inch gravel. Any rock or gravel processing will be conducted off site at an existing quarry or stockpile site.

New Drainage Ditch/Culvert

To accommodate independent water management, a drainage ditch or culvert will be constructed along the east edge of the ponds. This ditch/culvert will be built to accommodate both expected overflow rates and pump rates from the ponds. Each pond will be connected to the drain, such that water may exit but not enter. The outflow from the ponds will discharge to the marsh just south of the new ponds. Construction of the ditch/culvert will likely occur between June 2006 and December 2007.

Water Supply System

Multiple scenarios for providing adequate water supply to the ponds are being considered. We are collecting additional data to assist us in selecting the best scenario. The flow necessary to maintain adequate water quality during peak summer months is not known precisely, but is planned to be as high as 5,000 to

[5] Mueller, G.A. and J. Carpenter. In Press. The known ecology of Bonytail (*Gila elegans*) and razorback sucker (*Xyrauchen texanus*) and the potential role of oxbow habitats in their evolution, conservation, and recovery. U.S. Geological Survey. Denver, Colorado.

6,000 gallons per minute (gpm), during hot summer nights when biological oxygen demand is highest.

An existing surface pump, which pumps from the Martinez Lake inlet channel, is capable of discharging approximately 8,000 gpm, however screening such a large pump (to exclude non-native fish, their eggs, and larvae) may not be feasible. In addition, there is an existing ground water well that can discharge approximately 1000 gpm just inland from the surface water pump. The Martinez Lake inlet canal is restricted from public access, therefore no impediment to navigation would be expected (Both of these features are shown in the conceptual design). We propose to construct a new surface pump adjacent to the existing surface pump with about 1,000 to 2000 gpm capacity with a fish screen, appropriately sized to accommodate required flows while excluding the passage of fish, their eggs, and larvae. This new pump then will be routed into the existing pipe delivery system, but will be kept separate from the irrigation system required to water the adjacent fields.

In addition, we are considering three new groundwater wells with a 1000 gpm capacity along either the northern or western edge of the ponds near the Colorado River. These pumps will again be plumbed into the same water delivery piping system for the ponds. These ground water pumps will be located within either the western or northern edge of the project footprint, with the final location to be determined based on exploratory drilling and testing of production capacity.

To allow flexibility to use the different water sources, a pipe and water delivery manifold will be constructed to interconnect the pumps and wells. As shown in Figure 4, the eastern terminus of the pipe will start at the surface water well location. It will then connect to the ground water well, continue west along the north access road and then run along the western edge of the proposed ponds.

The water supply system described likely provides more water than will be necessary. However, until the project design is complete, and water losses are better understood, all water sources will be assumed necessary for the project to perform as desired. Selected features may be scaled back at a later date, if incoming data suggests such a change would be appropriate.

We anticipate constructing the water delivery system will be constructed between June 2006 and June of 2008, with most of the work being completed by October 2007. It will take approximately three months to drill the new groundwater wells and surface water well and about three months to construct the piping and supply electric to all the new pumps.

Staging and Launching

The dredge will be launched with a crane and construction of a launch pad will be unnecessary for this purpose. All equipment will be staged within the pond project footprint or along the existing roads.

There will be small launches and pump pads constructed for each of the six ponds to aid with fishery management, water quality monitoring, habitat research, and dewatering and/or fish harvests. These features will serve to minimize impacts to wetlands plant communities by designating a single access and staging location for each pond. These features will also be constructed within the planned footprint of the proposed ponds.

Field Construction

Soil removed from the ponds will be either transported or pumped to the designated fields. A drainage system is planned so that salt can be leached from the fields, as necessary. To help drain the fields during the leaching and irrigating process, the drainage system will either connect to the same ditch used for draining the ponds if an open ditch is constructed, or separate ditches that utilize existing outflow drains along the east side of the existing fields. All proposed drainage alignments are shown in Figure 4. Water that is drained from the fields will not enter the ponds, as is the case with the currently constructed site.

In addition a new water supply canal will be constructed to irrigate the new, higher fields. The fields will then be divided into smaller fields. The new canal will begin at the same location as the current one, but will extend down the center of where the fields currently exist, so that the area on either side of the canal will be of equal length. This improvement will allow more even and efficient distribution of water to the fields.

Access Roads

Most of the access roads for the site already exist. Two new access roads will be constructed and surfaced with aggregate, within the current footprint of the ponds. (See Figure 4 and conceptual design for locations). In addition, the access road between the ponds and the fields will likely be raised and resurfaced with aggregate. All other existing access roads in the immediate vicinity of the ponds will also be resurfaced with aggregate.

These roads serve to partition the ponds into similarly sized areas for ease of management, while providing increased assurance of isolation between ponds. Lastly, the additional roads will absorb some of the volume of excavated material.

Work Already in Progress

Six exploratory wells have been drilled to examine the soil configuration in the project area. These data will be used to evaluate the soil types that are present within the project footprint, and potential ground water well production rates.

Impacts to wetlands

Construction of the ponds is anticipated to last from June 2006 to December 2007, with most of the excavation being completed by December 2006, and most of the irrigation and drainage system construction being completed by October of 2007. During this time, we anticipate the temporary loss of approximately 6 acres of marsh type 5 habitat, 20 acres of open water habitat, and the permanent loss of approximately 56 acres of salt cedar/uplands within the footprint of the ponds and associated roads[6]. An additional 0.5 acre of salt cedar outside of the ponds footprint area will be permanently lost due to the expansion of the outflow drain to the south of the ponds (Figure 2).

Replacement of Marsh

To quantify the acreage of marsh that will colonize once the ponds are complete, we calculated the total acreage of all of the hummocks and pond shorelines with depths up to 3 feet. This calculation was based on the actual bathymetry produced in the design drawings, and excluded any areas where pond edges are to be rip-rapped, designed for boat access or spawning beds. The acreage expected to develop into marsh is approximately 8 acres, resulting in a positive net gain of approximately 2 acres within the footprint of the ponds. (Table 1).

This estimate does not include rip-rap shorelines with a 1.5:1 slope. Furthermore, the quality of the habitat created is expected to be of a higher value to native fish as well as marsh birds and migratory waterfowl because of the numerous additional habitat and site management features (spawning beds, hummocks, fish collection kettles, independent water sources and drainage, cover, etc. Refer to conceptual design).

Including the fields to be developed into California black rail habitat, the total anticipated marsh acreage will be approximately 20 acres, or a total net gain of approximately 14 acres over the entire project.

[6] Marsh classifications based on: Anderson, B.W., and R.D. Ohmart. 1976. *Vegetation Type Maps of the lower Colorado River from Davis Dam to the Southerly International Boundary.* Bureau of Reclamation, Boulder City, Nevada.

Figure 9. Wetland Impacts Map

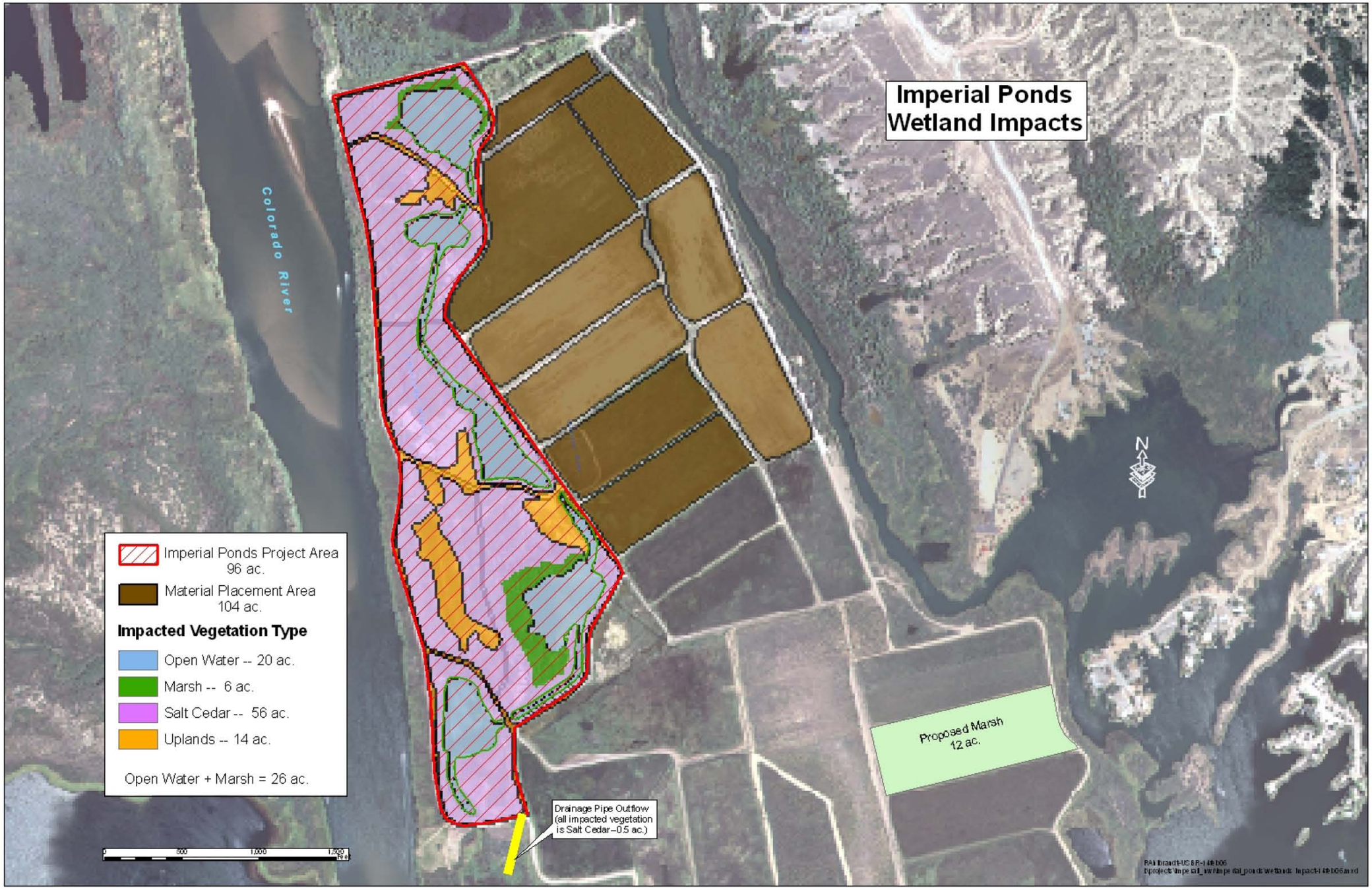


Table 1. Summary of Wetland Impacts

Total marsh temporarily impacted within ponds (Pre-construction)	6 acres
Total marsh permanently established within ponds (Post-construction)	8 acres
Net gain of marsh within ponds	**2 acres**
Total acres of proposed marsh construction in Field 18	12 acres
Total marsh gained	**14 acres**

Compliance with the Endangered Species Act

Coverage for the creation of backwater and marsh habitats under the Endangered Species Act was completed by the *Lower Colorado River Multi-Species Conservation Program- Final Biological Assessment*, and *Lower Colorado River Multi-Species Conservation Program- Final Habitat Conservation Plan.*[7] The project proponents (Reclamation and Imperial National Wildlife Refuge) have been involved with informal consultation with the Ecological Service's office throughout the planning process. Formal documentation of this project-specific consultation is forthcoming.

Additional Approvals and Compliance with other Environmental Statutes

The conceptual design was developed collaboratively by an interdisciplinary group of technical experts from Reclamation, U.S. Fish and Wildlife Service, U.S. Geological Survey, and Arizona State University. The project has been reviewed and accepted by the 56-member LCR MSCP technical review committee as a part of the 2006 Fiscal Year Workplan[8].

Compliance with the National Environmental Policy Act was completed by the *Lower Colorado River National Wildlife Refuges Comprehensive Management Plan and Environmental Assessment*, dated September 19, 1994.[9] Additionally, programmatic coverage for the creation of backwater and marsh habitats under the LCR MSCP was provided by the *Lower Colorado River Multi-Species Conservation Program-Final Programmatic Environmental Impact Statement/ Environmental Impact Report*[10]

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[7] Lower Colorado River Multi-Species Conservation Program. 2004. *Lower Colorado River Multi-Species Conservation Program, Volume II: Habitat Conservation Plan.* Final. December 17, 2004. (J&S 00450.00) Sacramento, CA.

[8] The approved LCR MSCP Fiscal Year 2006 Workplan is available on the LCR MSCP website: http://www.usbr.gov/lc/lcrmscp/workplans/FY05draft.pdf

[9] U.S. Fish and Wildlife Service, and U.S. Bureau of Reclamation. 1994. *Lower Colorado River National Wildlife Refuges Comprehensive Management Plan, 1994-2014.* Final. September 19, 1994. Albuquerque, NM.

[10] Lower Colorado River Multi-Species Conservation Program. 2004. *Lower Colorado River Multi-Species Conservation Program, Volume I: Final Programmatic Environmental Impact Statement/ Environmental Impact Report.* Final. December 17, 2004. (J&S 00450.00) Sacramento, CA.

To comply with Section 106 of the National Historic Preservation Act, Reclamation Archaeologists have undertaken two separate cultural resource inventories, which include all lands affected by this project. The status of these are: 1) Arizona State Historic Preservation Office (SHPO) concurrence with no properties/no effect for 157 acres; 2) SHPO is reviewing similar recommendations for an additional 85 acres.

At this time, we are requesting that your office provide written acknowledgement that coverage under the Clean Water Act, sections 401 and 404 are provided for under Nationwide Permit (NWP) Number 27: stream and wetland restoration activities.

Please feel free to contact me at (928) 783-3371 if you have any questions or need additional information.

Sincerely,
/s/ J. Kenneth Edwards

J. Kenneth Edwards, Refuge Manager
Imperial National Wildlife Refuge

Enclosure

Cc: Refuge Supervisor, AZ/NM, Fish & Wildlife Service, Albuquerque, NM
Field Supervisor, Arizona ES Office, Fish & Wildlife Service, Phoenix, AZ
Program Manager, Lower Colorado River, Multi-Species Conservation Program Office, Bureau of Reclamation, Boulder City, NV