



Lake Elsinore & San Jacinto Watersheds Authority



City of Lake Elsinore • City of Canyon Lake • County of Riverside
Elsinore Valley Municipal Water District • Santa Ana Watershed Project Authority

PROPOSITION - 40 GRANT

- WETLANDS ENHANCEMENT PROJECT – (JanuaryMay 20124)



2005-2006 CONSOLIDATED GRANTS – PROPOSITION 40
INTEGRATED WATERSHED MANAGEMENT PROGRAM



PROPOSITION-40 WETLAND ENHANCEMENT GRANT PROJECT

PURPOSE OF PROJECT

The Lake Elsinore/San Jacinto Watersheds Authority (LESJWA) received a Proposition-40 Grant, in the amount of \$600,000, for a Wetlands Enhancement Project to promote an ecological approach to restoring the beneficial uses of Lake Elsinore. The City, as the lead agency for LESJWA on this grant project, desires to enhance a portion of the existing 356 acre Back-basin mitigation wetlands area, with the hope of expanding improvements in the future. The California Department of Fish & Game holds a conservation easement over the 356 acre mitigation wetlands area. A substantial portion of the Back-basin mitigation wetlands area does not function or serve the purpose of providing "high quality wetlands habitat", as intended under the Conservation Easement Grant Deed. The City believes the proposed project is consistent with preserving and improving the conservation values of the mitigation area.

Lake Elsinore is the largest natural freshwater lake in southern California and is listed as impaired under the Federal Clean Water Act's 303d listing. Lake Elsinore has a long and sad history of water quantity and quality problems, caused in part from water diversions upstream and cultural eutrophication. Natural conditions and manmade factors have resulted in severe algae blooms, low dissolved oxygen levels, massive fish kills, sewer type odors (hydrogen sulfide & methane) and die offs of waterfowl due to botulism poisoning. The Santa Ana Regional Water Quality Control Board promulgated a Total Maximum Daily Load (TMDL) program for Lake Elsinore in 2005 to limit nutrient input and correct the impairment. The California Department of Fish & Game is listed as a stakeholder under this program.

The cost of nutrient control, primarily phosphorus, throughout the entire Lake Elsinore/San Jacinto River Watershed to the degree required to meet federal/state water quality targets for Lake Elsinore may be unachievable and cost prohibitive. Alternatively, a combination of limiting nutrients in the watershed to the maximum extent practicable, lake aeration, lake-level stabilization and biomanipulation of the food web and vegetative community may be the most rapid and low cost approach to achieve the water quality targets.

Traditionally, excess nutrients have been determined to be the sole causal variable(s) that result in a biostimulatory response to produce nuisance algae blooms. This simplistic view that chemicals solely determine the biological response overlooks the complex interaction of the aquatic food web in regulating algae biomass through predator-prey interactions. Limnologist recognize there are two types of stable states



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for nutrient enriched shallow lakes, like Lake Elsinore, that result in very different environmental outcomes. One stable state is like the current condition of Lake Elsinore, in which the vegetative community is dominated by single-celled planktonic algae (like blue-green algae) and the fishery is dominated by planktivores (bait fish like, Threadfin Shad minnows and rough fish, like Carp). This stable state is characterized by turbid water, low dissolved oxygen, fish kills (especially sport fish) and swamp type odors.

In contrast, the more desirable second type of stable state for the same nutrient enriched lake is one dominated by true aquatic plants and piscivores (sport fish). This stable state is characterized by clear water, abundant zooplankton and a high number of sport fish. The key to this stable state's desirable outcome is the high density of large bodied zooplankton that filter feed on algae, as well as the beneficial shelter and sequestering of nutrients by aquatic plants.

According to the Conservation Easement Deed the "Property is intended to provide high quality wetlands habitat in accordance with the Plan". The fundamental features of "wetlands habitat" are hydric soils and wetlands type vegetation. According to the Biological Reconnaissance Survey Report recently performed for the Back-basin Prop-40 Grant Project, the only areas containing good growth of riparian and/or wetlands type vegetation occurs along the margins of the islands and some of the channels. Only in these limited areas of the conservation area do the soils either remain hydrated and/or the sunlight can penetrate the turbid waters in the shallow photic zone, where emergent plants can root.

Much of the conservation area consists of large, flat bottomed, open ponds that are not capable of supporting emergent, immersed or floating aquatic plants. These large ponds are too deep and the water too turbid to support emergent and immersed plants that require sunlight near the sediment. Floating aquatic plants cannot become established, because the large wind fetch results in excessive wind and wave action.

The original Mitigation Plan for the Lake Elsinore Management Project included the condition for 75 acres of willow woodland planted on the dry islands at elevations 1,242 – 1,245' 'MSL. According to the recent Biological Survey, only 9.5 acres of southern willow scrub exists at the site. The water source for this riparian vegetation was intended to be a high groundwater table, with the stipulation that the water level in the wetlands be maintained at 1,240' MLS. Subsequent revisions to Permit No. 88-00215-RRS allowed the lowering of the water level in the wetlands to 1,238'MSL. The lowering



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of the wetlands water level may have dropped the groundwater table, which in turn reduced the suitable area for riparian vegetation.

The proposed Wetlands Enhancement Project is intended to improve the wetlands habitat and serve as a prototype to evaluate the role of wetlands in supporting rehabilitation of Lake Elsinore. The overall goal is to promote hydrated soils and shallow water areas to foster establishment of riparian and aquatic vegetation. Maintaining the land to water ratio for the purpose of conserving water is another important goal of the project, so as not to substantially increase net evaporative loss. The proposed improvements in wetlands habitat, with a diverse aquatic plant community, should promote a more biodiverse wildlife assemblage.

This grant funding offers a rare opportunity to begin the process of regenerating the conservation area and integrating the wetlands with Lake Elsinore in order to fulfill its fish and wildlife function as originally intended.

PROJECT DESCRIPTION & SCOPE

The project consists of excavating two new channels and one open water small pond on the existing large Island-II, then utilizing the excavated material to form shallow water islands in the existing large southeast pond. In addition, two existing channels surrounding Island-II are periodically dry, especially during the summer months. This is due to the poor design of the water infrastructure that connects the channels to the wetlands. The dry channels do not support riparian/wetlands habitat. The existing water infrastructure will be improved in three separate locations to permit water to properly circulate around Island-II. Below are descriptions of key components of the project and attached are the associated plan drawings.

New Channels & Small Pond – Create approximately 2,800 linear feet of riparian shoreline by excavating approximately 850 linear-feet of new channels and 264 square-feet of a small pond on Islands-II. ~~Excavate 1,550 linear feet of new channels and 250 square feet of a small pond on Islands-II.~~ Given the surface water elevation in the Back-basin wetlands area is designated at 1,238' MSL (above Mean Sea Level), the bottom of the new channels will be excavated to an elevation of 1,234' MSL to provide a maximum of 4-feet of water depth. The location of the new channels is based on placement at the lowest elevations to reduce excavation and to avoid impacts to high value habitat along the existing channel to the southeast of Island-II.



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The bottom of the small pond will be excavated to an elevation of 1,230'MSL to provide a maximum water depth of 8-feet. The banks of the channels and pond will be graded to a slope ratio of 4 to 1. The banks of the small pond will be contoured to provide ~~68-~~ foot wide horizontal reliefs at ~~2'-and 46'~~ water depths to provide additional shallow water areas. A small island will be shaped in the center of the small pond to reduce wind fetch and provide an additional vegetative area.

Staging, Excavation, Grading & Hauling – Mobilization of heavy equipment and employee vehicles will be staged on-site of the excavation or on the roadway outside the Back-basin conservation easement area. The volume of excavated material from the new channels and pond is estimated at ~~40,000~~~~49,220~~ cubic yards (CY). The excavated material will be stock piled immediately adjacent (within 100-feet) to the excavation site prior to loading onto dump trucks. The specific stock pile area(s) will be determined in the field by a qualified biologist to reduce impacts to surrounding habitat.

Haul routes from the original construction of the Back-basin wetlands have been maintained and will now be utilized to provide access for heavy equipment to the Back-basin wetlands, the excavation site and placement of material in the large pond to the southeast. All equipment and vehicles utilized during the project will be required to remain on the existing maintenance roadways to reduce environmental impacts to the surrounding area.

Coffer Dam & Drawdown of Southeast Pond – A coffer dam, with the dimensions of 125' x 16', will be constructed across a channel to isolate the large southeast pond. Drawdown of the southeast pond will begin utilizing portable pumps. Access to the dry bed of the southeast pond will require the construction of a temporary earthen ramp into the bank of the shoreline that is 20' wide, with a 12% grade. The City shall maintain the existing cattail and bulrush vegetation that is located around the margin of the pond by utilizing a water truck.

Vegetation and Bird Loafing Islands – ~~The excavated material will be placed in the dry bed of the southeast pond to form approximately 25,000 linear feet of island slopes for planting aquatic vegetation and about 1,200 LF of bird loafing islands.~~~~The excavated material will be placed in the dry bed of the southeast pond to form 18,650 linear feet of narrow, meandering, ribbon-like islands and 1,200 LF of bird loafing islands.~~ Dump trucks will place the material in the approximate location. The material will be contoured, graded, compacted and tracked by a bulldozer, with side grading arms.



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The ribbon islands have a top width of 8-feet and slopes of 2:1. The lengths of the islands are variable and range from about ~~450~~~~400~~ feet to ~~1,000~~~~1,200~~ feet. The top of the islands will equal the water surface elevation of 1,238'MSL or below to ensure the soils remain wet. The ribbon islands are generally spaced 40' apart from top to top and 24' apart from the bottom of the slopes.

The dimensions of the two crescent-shaped bird loafing islands are ~~approximately~~ 600' long by 20' wide. The top of the loafing islands are set at an elevation of ~~1,240~~'MSL and should remain sparsely vegetated.

Improvements to Water Circulation – Three access road crossings over the channels that are supposed to feed water around Island-II will be partially excavated. An 18" diameter pvc pipe will be embedded into the road crossing at a bottom elevation of 1,234'MSL. The excavation will then be refilled and compacted.

Site Restoration – All disturbed ground that is not apart of the project shall be tracked by a bulldozer and reseeded with native grasses prior to the start of the rainy season. The temporary earthen ramp to the southeast pond will be removed and graded to the original specification. All access road crossings and coffer dam will be improved or removed to allow proper water circulation into channels and ponds.

Planting of Riparian & Wetland Vegetation – A Planting Plan for the establishment of riparian and wetland vegetation on the new channels and ribbon islands will be developed by the City. The City shall receive approval by the California Department of Fish & Game of the Planting Plan, then implement the Planting Plan to complete the project.

IMPACT AVOIDANCE & MINIMIZATION

- Project construction may indirectly impact native botanical populations by increasing dust (i.e., negatively impacts pollinator activity) or increasing seed pool of alien species. Indirect impacts can be mitigated by implementing standard 'Best Management Practices' (BMPs) including dust control measures and washing of equipment before it reaches the site.
- The burrowing owl is a state Species of Special Concern. The burrowing owl is typically found in grassland, scrubland and desert habitats with numerous small mammal burrows (Coulombe 1971). Burrowing owls nest and roost in modified,



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expanded burrows originally created by fossorial animals including ground squirrels. They are also known to make use of human-created structures such as cement culverts and pipes for burrows. Survey results show that burrowing owls do not currently occupy the Project site and there is no current potential risk of the take of burrowing owls. Although no burrowing owls were found during the surveys, within 30 days of the start of any land disturbance activities, a qualified biologist should survey the site to determine if burrowing owls are present and nesting in the construction area. If burrowing owl are encountered and determined to be nesting, land disturbance activities shall not commence until the biologist has implemented the required measures according to the CDFG to clear the site for construction. One such measure may be to passively relocate the owls once the young have fledged the nest. This type of relocation requires the construction of artificial burrows in the near vicinity and collapsing of the old burrows once the owls have clearly flushed out of the site. If burrowing owls are encountered during construction, construction activities shall be halted in the vicinity of the find and the biologist/monitor called to the site. The contractor shall implement the recommendations of the biologist/monitor.

- A number of resident and migratory bird species were observed utilizing the riparian habitat near the project area. The State of California prohibits the take of active bird nests. To avoid an illegal take of active bird nests, any grubbing, brushing or tree removal will be conducted outside of the State identified nesting season (nesting season is March 15 through September 1). Alternatively, the site will be evaluated by a qualified biologist prior to initiation of ground disturbance to determine the presence or absence of nesting birds. If an active nest is located in the project construction area it will be flagged and a 300 foot buffer placed around it. No activity will occur within the 300 foot buffer until the young have fledged the nest.
- Following pre-construction survey, a qualified biologist will make a determination: (1) if a biological monitor should be present at the site during all land disturbance activities; (2) if exclusionary fencing needs to be installed around the perimeter of the construction work zone; or (3) if no further action is required. The biologist/monitor should remain on-call during construction activities. If by chance a sensitive species is encountered during construction following the initial phases of ground disturbance, construction activities shall be halted in the vicinity of the find and the biologist/monitor called to the site. The contractor shall



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implement the recommendations of the biologist/monitor who will coordinate with the resource agencies.

- All personnel associated with the construction on the site shall attend a worker education class. This class should include general information regarding all sensitive species and their habitat known to occur in the near vicinity of the project. Particular attention should be made to the various flora and fauna, habitat types onsite, and regulations. The class should provide relevant information regarding the Federal and State laws and worker responsibilities when working in Riparian habitat.
- All project activities will be limited to a well-defined area. Prior to grading and construction activities the limits of disturbance will be clearly marked with flagging, stakes, or fencing.
- After pumping down the southeast pond, the City shall maintain the hydrated soil conditions in those areas with establish aquatic vegetation, mainly cattail and bulrush around the margins of the southeast pond.
- The Back Basin Area of Lake Elsinore provides connectivity between remnant habitats within the greater urbanized area and large protected habitat areas located outside of the urbanized area. Habitat blocks that provide connectivity between different types of habitat are important in allowing the exchange of adaptive alleles to spread as well as allowing species to migrate to new areas of appropriate habitat. The project should take care to not interrupt the integrity of connectivity for wildlife movement. Potential indirect adverse impacts to adjacent natural areas and organisms include a variety of factors resulting from increased disturbance due to visitation by humans: for example, loss of efficiency in foraging and other activities due to distraction and interference, increased invasion by non-native plants and animals due to human transport, and increased risk of fire. For the proposed project measures should be implemented to protect the natural integrity of the site. The City shall install barrier fencing to prevent further intrusion and degradation in this area.

PLANTING PLAN

Background



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In July 1989 the California Department of Fish & Game approved the “Lake Elsinore Management Project – Final Mitigation Plan”. Bullet point No. 13 below describes the planting scheme for the Lake Management Wetlands Mitigation Plan.

13. Vegetation planting scheme (subject to agricultural suitability soils tests) for example: the willow woodland islands shall be black willow plants on 10 ft. centers over 50 acres, the margins of the willow plantings shall be planted in mule fat on 10 ft. centers. The minimum acceptable planting material shall be deep containerized rooted cuttings. Cottonwoods shall be mixed in with the willows, with a minimum of 25 cottonwoods per island. Fifty percent of the mainland shoreline shall be planted with 100 ft. swathes in black willow, then 100 ft. of bulrush/cattail root, then 100 ft. open, and repeat this scheme.

Subsequently, a more detailed planting plan was developed for the “Initial Wetlands Plantings” per the attached Table-1 (1989).

The current Lake Elsinore Prop-40 Wetlands Enhancement Project will generally follow the original planting scheme to maintain the conservation values of the original Lake Elsinore Management Project’s Final Mitigation Plan. In addition, experimental test plantings of a variety of native or regionally naturalized beneficial plants may be planted, based upon availability and funding.

Transplantation of native vegetation that is locally abundant in the Back-basin wetlands area will be used where appropriate. A maximum of 1/8 of the plants in any particular area would be collected for transplantation.

The slopes of the newly excavated channels and pond will provide both riparian and wetland zones for planting. The constructed ribbon islands and the protected open water areas in between, will provide areas for establishing wetlands vegetation for emergent, submerged and floating aquatic vegetation.

Below are tables showing the primary plantings and potential test plantings for each zone. In addition, attached are cross sectional graphics showing the proposed plantings.



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Primary Planting Plan for Channel & Pond Riparian Zones:

| Common Name | Scientific Name (<i>Genus species</i>) | General Type | Planting Density |
|---|--|-----------------------|---|
| Gooding Willow | <i>Salix gooddingii</i> | Tree | 1-gal saplings planted 10-ft o.c. per 3,600 LF upper channel slope (Max = 360 plants) |
| Red Willow | <i>Salix laevigata</i> | Tree | 1-gal saplings planted 10-ft o.c. per 3,600 LF upper channel slope (Max = 360 plants) |
| Fremont Cottonwood | <i>Populus fremontii</i> | Tree | 5-gal saplings planted 50-ft o.c. per 3,600 LF upper channel slope (Max = 72 plants) |
| Mulefat | <i>Baccharis salicifolia</i> | Shrub | 1-gal planted 10-ft o.c. per 3,600 LF upper channel slope (Max = 360 plants) |
| Native Grass Seed Mix <ul style="list-style-type: none"> • 20% Zorro Fescue • 40% Hykon Rose Clover • 40% Blando Brome | <i>Festuca megalura zorro</i> <i>Trifolium hirtum hykon</i> <i>Bromus mollis</i> | Grasses & groundcover | 40-lbs seed mix per acre on slopes. (Max = 14 acres) |



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Primary Planting Plan for Channel & Pond & Ribbon Islands Wetlands Zones:

| Common Name | Scientific Name (Genus species) | General Type | Planting Density |
|--------------------|--|---------------------|--|
| Cattail | <i>Typha latifolia</i> | Emergent | 1-gal in groups of 10 per 100-LF of shoreline over 22,500 LF. (Max = 2,250 plts) |
| California Bulrush | <i>Schoenoplectus (Scirpus) californicus</i> | Emergent | 1-gal in groups of 10 per 100-LF of shoreline over 22,500 LF. (Max = 2,250 plts) |
| Mexican Rush | <i>Juncus mexicanus</i> | Emergent | 1-gal plants in groups of 10 per 100-LF of shoreline over 22,500 LF. (Max = 2,250 plts) |

Test Planting Plan for Riparian Zone:

| Common Name | Scientific Name (Genus species) | General Type | Planting Density |
|----------------------|--|---------------------|-------------------------|
| Mugwort | <i>Artemisia douglassiana</i> | | n/a |
| Meadow Barley | <i>Hordeum brachyantherum</i> | | n/a |
| Bush Monkey Flower | <i>Mimulus aurantiacus</i> | | n/a |
| California Rose | <i>Rosa californica</i> | | n/a |
| Small Fescue | <i>Vulpia microstachys</i> | | n/a |
| Yerba Mansa | <i>Anemopsis californica</i> | | n/a |
| Spreading Alkaliweed | <i>Cressa truxillensis</i> | | n/a |
| Nutsedge | <i>Cyperus eragrostis</i> | | n/a |
| Saltgrass | <i>Distichlis spicata</i> | | n/a |



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| | | | |
|--------------------|--------------------------|--|-----|
| Sand Spikerush | Eleocharis montevidensis | | n/a |
| Alkali Heath | Frankenia salina | | n/a |
| Creeping Wildrye | Leymus triticoides | | n/a |
| Arrowweed | Pluchea sericea | | n/a |
| Black Willow | Salix goodingii | | n/a |
| Red Willow | Salix laevigata | | n/a |
| Common Threesquare | Scirpus americanus | | n/a |
| Alkali Bulrush | Scirpus maritimus | | n/a |
| Southern Cattail | Typha domingensis | | n/a |

Test Planting Plan for Wetlands Zone:

| Common Name | Scientific Name (Genus species) | General Type | Planting Density |
|-------------------------|--|--------------|------------------|
| Clustered Field Sedge | <i>Carex praegracillis</i> | | n/a |
| Salt Grass | <i>Distichlis spicata</i> | | n/a |
| Trailing Wild Rye | <i>Elymus triticoides</i> | | n/a |
| California Loose Strife | <i>Lythrum californiacum</i> | | n/a |
| Alkali Bull Rush | <i>Scirpus maritimus</i> | | n/a |
| Wrinkled Rush | <i>Juncus rugulosus</i> | | n/a |
| Pale Spike Rush | <i>Eleocharus palustris</i> or <i>E. macrostachya</i> | | n/a |
| Parish's Spike Rush | <i>Eleocharus parishii</i> | | n/a |
| Iris Leaved Rush | <i>Juncus xiphioides</i> | | n/a |
| Scarlet Monkey Flower | <i>Mimulus cardinalis</i> | | n/a |
| Spotted Monkey Flower | <i>Mimulus guttatus</i> | | n/a |
| Trailing Wild Rye | <i>Elymus triticoides</i> | | n/a |
| Wire Rush | <i>Juncus balticus</i> | | n/a |
| Iris Leaved Rush | <i>Juncus xiphioides</i> | | n/a |
| California Goldenrod | <i>Solidago californica</i> | | n/a |
| California Fuchsia | <i>Epilobium canum</i> | | n/a |
| Boraxweed | <i>Nitrophila occidentalis</i> | | n/a |
| Yerba Mansa | <i>Anemopsis californica</i> | | n/a |
| Wire Rush | <i>Juncus balticus</i> | | n/a |
| Alkali Heath | <i>Frankenia salina</i> | | n/a |
| California Club Rush | <i>Scirpus cernus</i> | | n/a |
| White Alder | <i>Alnus rhombifolia</i> | | n/a |



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| | | | |
|---------------------|-------------------------------|--|-----|
| Desert Willow | <i>Chilopsis linearis</i> | | n/a |
| California Sycamore | <i>Platanus racemosa</i> | | n/a |
| Coontail | <i>Ceratophyllum demersum</i> | | n/a |
| Waterweed | <i>Elodea canadensis</i> | | n/a |
| Holy-leaved nymph | <i>Najas marina</i> | | n/a |
| Sago pondweed | <i>Potamogeton nodosus</i> | | n/a |
| Small pondweed | <i>Potamogeton pusillus</i> | | n/a |

NON-NATIVE & INVASIVE MANAGEMENT PLAN

- The beneficial aspects of this project relative to biological resources include the expansion of the fresh water marsh and riparian habitats, and decreases in the non-native grassland habitat. However, with a larger inundation area, there is some potential for the expansion of water tolerant noxious weeds such as tamarisk and non-native amphibians such as bull frogs. Therefore, the City, in coordination with the resource agencies, will implement a long-term habitat and wildlife monitoring plan that includes an exotic species removal program.
- This type of program could restore the degraded habitat back to a native habitat condition and enhance the function of the existing surrounding by converting scattered “pockets” of nonnative vegetation to native vegetation. Restoration and enhancement of this area would increase the habitat continuity and ecological integrity of the area and would provide more functional habitat.
- Vegetative restoration should include nonnative species removal, maintenance and monitoring. Following the removal of the target non-native species (such as tamarisk), the site could be allowed to passively revegetate back into a riparian woodland. It may be necessary however, to include an active component or manipulation to the passive revegetation in order augment the process and add canopy structure. The intent of active revegetation following nonnative species removal is to replace tree canopy cover as soon as possible, to prevent the colonization of a new different noxious species and prevent temporal habitat loss for migratory birds and local resident wildlife.
- Aquatic restoration should also include non-native species removal, maintenance and monitoring. Monitoring of the aquatic environment via seining and/or electroshock surveys will provide data on the numbers of non-native amphibians.



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Once population is gathered, an intensive eradication plan can be implemented in coordination with CDFG. Following the initial eradication effort quarterly monitoring can help identify the need for additional control measures.

- One of the primary requirements of an exotics removal program is to avoid impacts to existing native plants and wildlife species. Habitat and wildlife monitoring of the Project area should begin the first year following construction and continue for five years. The purpose of the monitoring is to document the changes in habitat over time. General botanical and wildlife monitoring should be conducted for the life of the Project. Annual monitoring, including focused protocol least Bell's vireo and coastal surveys, will provide baseline data that can be used for future management of these conserved lands and will help identify short-term changes in the habitat conditions.
- Qualitative habitat monitoring should focus on habitat type, habitat conditions, limits of habitat type area, botanical species diversity, structure, recruitment rates, and any significant disease or pest problems. During site monitoring, a qualified biologist should list the invasive exotic species that need to be removed and map where they occur. Monitoring should be performed in the spring, between April and July, to help record an accurate representation of perennial and annual herbaceous plants on-site. Specific, sampling grids and transects should be set for the annual monitoring. Permanent photo stations should be set within the grids and transects to provide a visual photo log to track of the changes in habitat over time. All wildlife species detected by sight, track, or sign within the monitoring areas should be recorded. More intensive protocol level least Bell's vireo surveys should also be conducted by a qualified biologist. This data will show how the habitat is functioning for the benefit of wildlife over time.
- A qualified biologist should prepare the monitoring reports that will review the botanical and wildlife monitoring results, and progress of the restoration and enhancement area relative the exotic species removal program. An important component to these reports will be photographs from the permanent photo stations. An effective monitoring program can provide valuable information on the effects of an action and the need to modify the action. Monitoring for this project would involve the collection and interpretation of biological resource data during the life of the project, and documentation of the effects of the action on the biological resources of concern.

GENERAL NOTES:

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CITY OF LAKE ELSINORE MUNICIPAL CODE, CHAPTER 15.72 AND APPLICABLE STANDARDS AND SPECIFICATIONS AND THE LATEST EDITION OF THE UNIFORM BUILDING CODE (U.S.C.) CHAPTER 33.
2. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES AND U.S.A. ALERT (1-800-422-4155) 48 HOURS PRIOR TO GRADING.
3. THE CONTRACTOR SHALL NOTIFY THE CITY ENGINEERING DEPARTMENT AT LEAST TWENTY-FOUR (24) HOURS IN ADVANCE OF BEGINNING GRADING OPERATIONS.
4. DUST SHALL BE CONTROLLED BY WATERING OR OTHER METHODS APPROVED BY THE CITY ENGINEER.
5. CUT SLOPES SHALL BE NO STEEPER THAN 4 HORIZONTAL TO 1 VERTICAL, UNLESS OTHERWISE APPROVED, AND SHALL BE SHOWN ON PLAN.
6. FILL SLOPES SHALL BE NO STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL, UNLESS OTHERWISE APPROVED, AND SHALL BE SHOWN ON PLAN.
7. ALL LIMITS OF GRADING SHALL BE CLEARLY DELINEATED IN THE FIELD PRIOR TO THE COMMENCEMENT OF ANY GRADING.
8. ALL FINISH GRADE SHALL BE "CAT TRACKED" FOR FUTURE PLANTING BY OTHERS.
9. APPROVED EROSION PREVENTIVE MEASURES SHALL BE PROVIDED AND MAINTAINED DURING THE RAINY SEASON AND SHALL BE IN PLACE AT THE END OF EACH DAY'S WORK.
10. ALL WORK SHALL CONFORM TO THE CITY AND STATE CONSTRUCTION SAFETY ORDERS.
11. THE LOCATION AND PROTECTION OF ALL UTILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
12. AN APPROVED SET OF GRADING PLANS SHALL BE ON THE JOB SITE AT ALL TIME.
13. SANITARY FACILITIES SHALL BE PROVIDED AND MAINTAINED ON THE PROJECT SITE BY THE CONTRACTOR THROUGHOUT THE DURATION OF CONSTRUCTION.
14. ANY CONTRACTOR PERFORMING WORK ON THIS PROJECT SHALL FAMILIARIZE THEMSELVES WITH THE SITE AND BE SOLELY RESPONSIBLE FOR ANY DAMAGE TO EXISTING FACILITIES RESULTING DIRECTLY OR INDIRECTLY FROM CONTRACTOR'S OPERATIONS, WHETHER OR NOT SUCH FACILITIES ARE SHOWN ON THESE PLANS.
15. THIS PROJECT HAS OBTAINED A NATIONAL POLLUTION PREVENTION ELIMINATION SYSTEM (NPDES) PERMIT TO REGULATE MUNICIPAL AND INDUSTRIAL STORM WATER DISCHARGES.
16. THE WETLANDS PROJECT SITE IS WITHIN AN ENVIRONMENTALLY SENSITIVE AREA. NO WORK OR ACCESS IS ALLOWED OUTSIDE OF THE LIMITS OF THIS PROJECT AS DESIGNATED ON THE PLANS.
17. TEMPORARY STOCK PILES AND ACCESS BY THE CONTRACTOR FOR MOBILIZATION, EXCAVATION, TEMPORARY STOCK PILE AND HAULING OF THE EXCAVATED MATERIAL SHALL BE CONTAINED WITHIN THE PROJECT SITE LIMITS AS DELINEATED ON THE PLANS. TEMPORARY STOCK PILES OF THE EXCAVATED MATERIAL SHALL NOT EXCEED 15 FEET ABOVE EXISTING GROUND SURFACE AND THE STOCK PILE SURFACES MUST BE MAINTAINED AT 3(H) TO 1(V) OR FLATTER.
18. CONTRACTOR AGREES TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DESIGN, CONSTRUCT AND MAINTAIN ALL SAFETY DEVICES AND SHALL BE RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE, AND FEDERAL SAFETY AND HEALTH STANDARDS AND REGULATIONS.
19. UPON COMPLETION OF EACH DAY'S WORK, THE CONTRACTOR SHALL BE RESPONSIBLE FOR LEAVING THE WORK AREA FREE OF HAZARDS AND SHALL PROVIDE ALL NECESSARY TEMPORARY SIGNS, WARNING DEVICES, AND BARRICADES.
20. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE CITY OF LAKE ELSINORE, EMPLOYEES AND AGENTS HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE CITY.
21. ALL CHANGES TO THESE PLANS SHALL BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.
22. QUANTITIES SHOWN HEREON ARE PROVIDED FOR BIDDING PURPOSES ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL QUANTITIES PRIOR TO BIDDING FOR CONSTRUCTION.

IN THE CITY OF LAKE ELSINORE, RIVERSIDE COUNTY, STATE OF CALIFORNIA

PROJECT PLAN LAKE ELSINORE WETLANDS ENHANCEMENT PROJECT

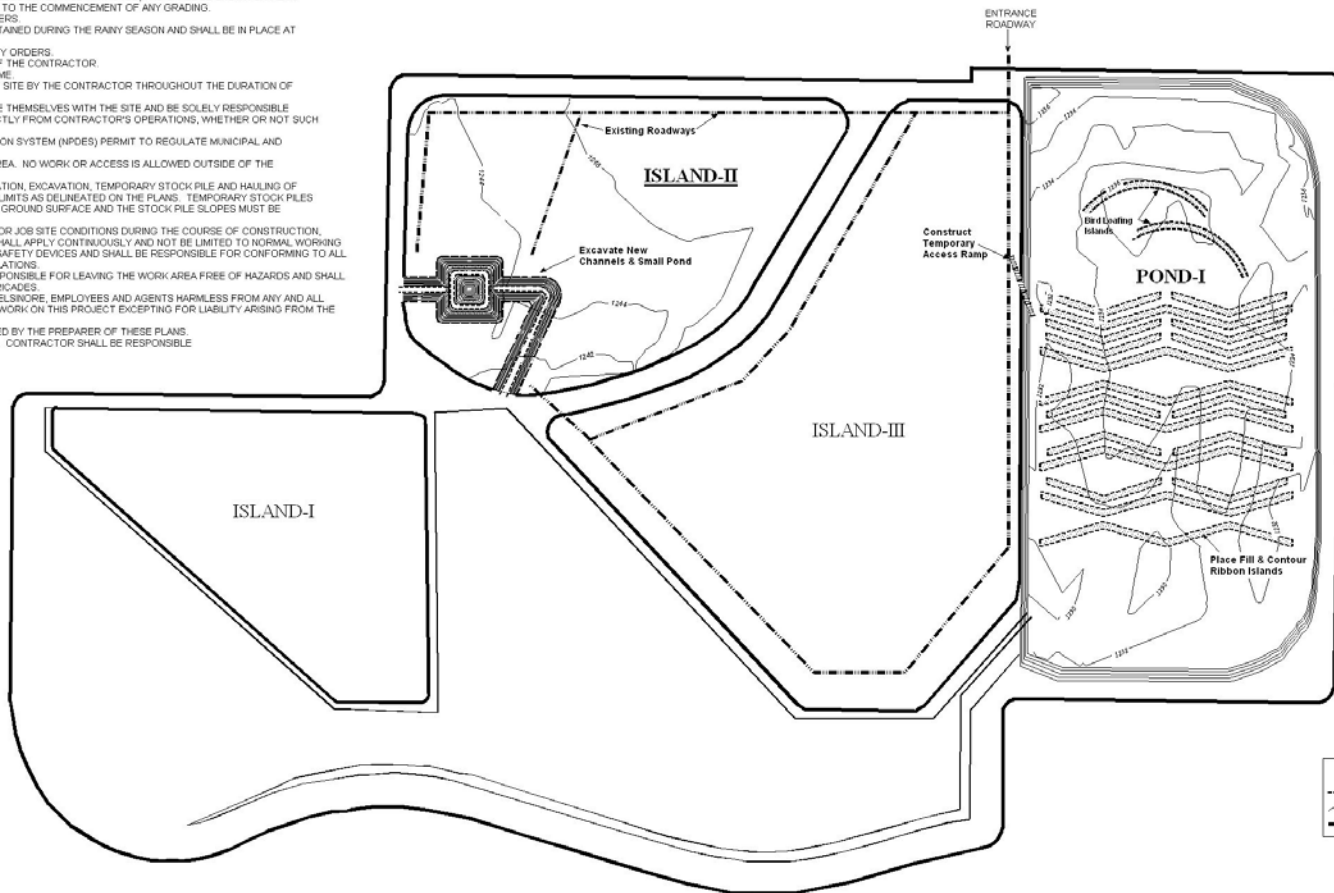
| EST. EARTHWORK QUANTITIES | |
|---------------------------|-----------|
| RAW CUT | 40,000 CY |
| EXPORT FILL | 40,000 CY |
| RAW FILL | 40,000 CY |

VICINITY MAP



GENERAL PROJECT LOCATION

GPS: 33° 38' 39.02" N / 117° 19' 17.37" W



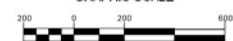
LEGEND

- New Construction
- Elevations (Feet AMSL NOV20)
- Existing Roadways

SHEET INDEX

| DESCRIPTION | SHEET No. |
|----------------------------|-----------|
| TITLE SHEET - PROJECT PLAN | 1 |
| EXCAVATION & GRADING PLAN | 2 |
| DETAILS GRADING PLAN | 3 |
| FILL ISLANDS PLAN | 4 |
| FILL ISLANDS PLAN | 5 |
| DETAILS FILL ISLANDS PLAN | 6 |

GRAPHIC SCALE



SCALE: 1" = 200'

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|------------------|----|------|---------------|-------|-----------------|
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THESE PLANS HAVE BEEN REVIEWED FOR COMPLIANCE WITH THE APPROPRIATE CONDITIONS OF DEVELOPMENT AND/OR CITY AND STATE LAWS, AND HAVE BEEN FOUND ACCEPTABLE.

KEN A. SCHMALZ, REG. NO. 26915
CITY ENGINEER
CITY OF LAKE ELSINORE



CITY OF LAKE ELSINORE
130 S. MAIN STREET
LAKE ELSINORE, CA 92530

UNAUTHORIZED CHANGES:
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SCALE: AS NOTED
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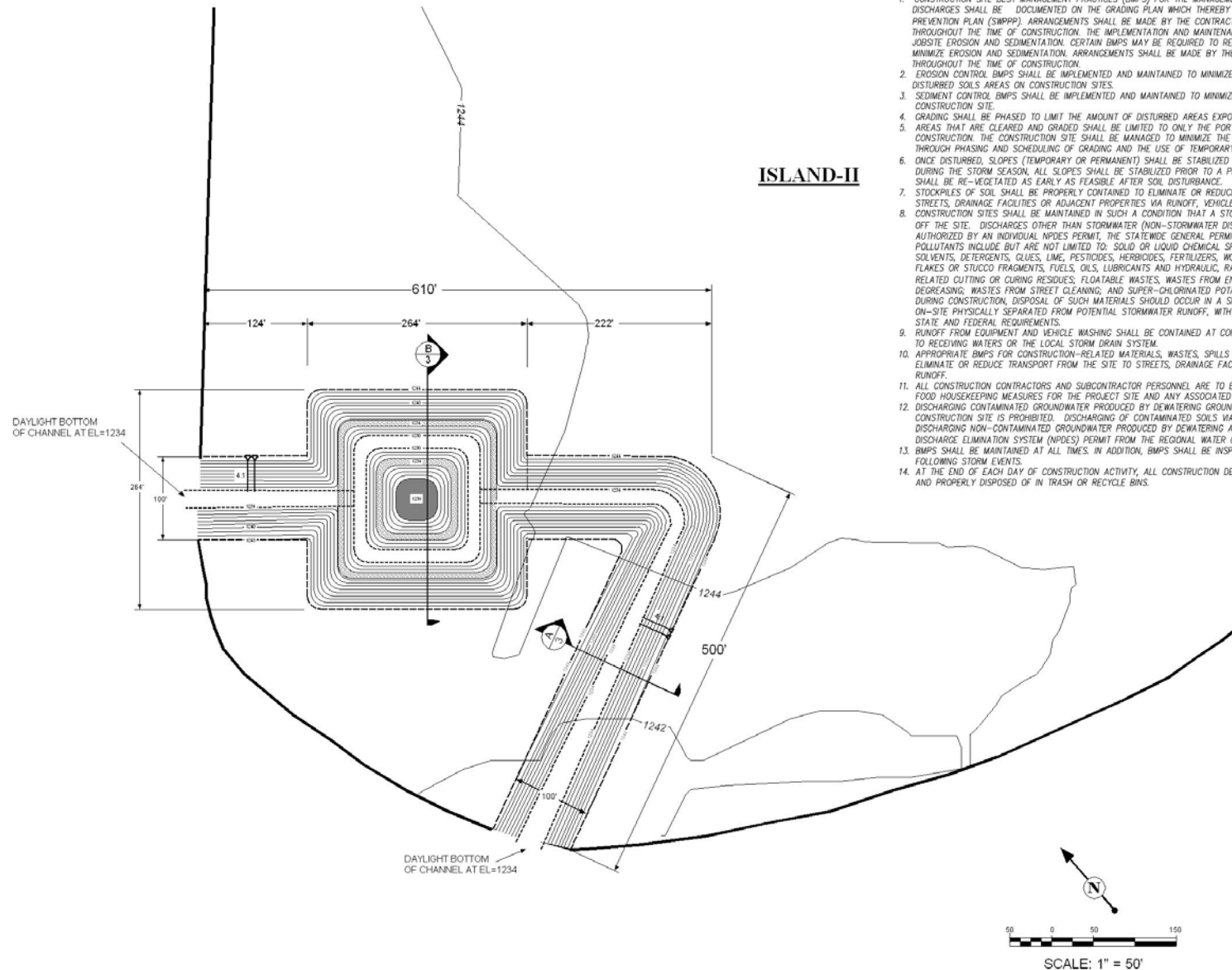
CITY OF LAKE ELSINORE
TITLE SHEET
WETLANDS PROJECT
PROJECT PLAN

SHEET No. 1
OF 6 SHEETS
FILE No.

NPDES-WHEN ONE ACRE OR MORE IS BEING DISTURBED:

1. CONSTRUCTION SITE BEST MANAGEMENT PRACTICES (BMPs) FOR THE MANAGEMENT OF STORM WATER AND NON-STORMWATER DISCHARGES SHALL BE DOCUMENTED ON THE GRADING PLAN WHICH THEREBY BECOMES THE SITE STORM WATER POLLUTION PREVENTION PLAN (SWPPP). ARRANGEMENTS SHALL BE MADE BY THE CONTRACTOR TO RETAIN THE SWPPP ON THE JOBSITE THROUGHOUT THE TIME OF CONSTRUCTION. THE IMPLEMENTATION AND MAINTENANCE OF SITE BMPs IS REQUIRED TO MINIMIZE JOBSITE EROSION AND SEDIMENTATION. CERTAIN BMPs MAY BE REQUIRED TO REMAIN IN PLACE THROUGHOUT THE YEAR TO MINIMIZE EROSION AND SEDIMENTATION. ARRANGEMENTS SHALL BE MADE BY THE CONTRACTOR TO MAINTAIN THOSE BMPs THROUGHOUT THE TIME OF CONSTRUCTION.
2. EROSION CONTROL BMPs SHALL BE IMPLEMENTED AND MAINTAINED TO MINIMIZE THE ENTRAINMENT OF SOIL IN RUNOFF FROM DISTURBED SOILS AREAS ON CONSTRUCTION SITES.
3. SEDIMENT CONTROL BMPs SHALL BE IMPLEMENTED AND MAINTAINED TO MINIMIZE THE TRANSPORT OF SOILS FROM THE CONSTRUCTION SITE.
4. GRADING SHALL BE PHASED TO LIMIT THE AMOUNT OF DISTURBED AREAS EXPOSED TO THE EXTENT FEASIBLE.
5. AREAS THAT ARE CLEARED AND GRADED SHALL BE LIMITED TO ONLY THE PORTION OF THE SITE THAT IS NECESSARY FOR CONSTRUCTION. THE CONSTRUCTION SITE SHALL BE MANAGED TO MINIMIZE THE EXPOSURE TIME OF DISTURBED SOIL AREAS THROUGH PHASING AND SCHEDULING OF GRADING AND THE USE OF TEMPORARY AND PERMANENT SOIL STABILIZATION.
6. ONCE DISTURBED, SLOPES (TEMPORARY OR PERMANENT) SHALL BE STABILIZED IF THEY WILL NOT BE WORKED WITHIN 21 DAYS. DURING THE STORM SEASON, ALL SLOPES SHALL BE STABILIZED PRIOR TO A PREDICTED STORM EVENT. CONSTRUCTION SITES SHALL BE RE-VEGETATED AS EARLY AS FEASIBLE AFTER SOIL DISTURBANCE.
7. STOCKPILES OF SOIL SHALL BE PROPERLY CONTAINED TO ELIMINATE OR REDUCE SEDIMENT TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES OR ADJACENT PROPERTIES VIA RUNOFF, VEHICLE TRACKING, OR WIND.
8. CONSTRUCTION SITES SHALL BE MAINTAINED IN SUCH A CONDITION THAT A STORM DOES NOT CARRY WASTES OR POLLUTANTS OFF THE SITE. DISCHARGES OTHER THAN STORMWATER (NON-STORMWATER DISCHARGES) ARE PROHIBITED, EXCEPT AS AUTHORIZED BY AN INDIVIDUAL NPDES PERMIT, THE STATEWIDE GENERAL PERMIT-CONSTRUCTION ACTIVITY. POTENTIAL POLLUTANTS INCLUDE BUT ARE NOT LIMITED TO: SOLID OR LIQUID CHEMICAL SPILLS; WASTES FROM PAINTS, STAINS, SEALANTS, SOLVENTS, DETERGENTS, GLUES, LIME, PESTICIDES, HERBICIDES, FERTILIZERS, WOOD PRESERVATIVES, AND ASBESTOS FIBERS, PAINT FLAKES OR STUCCO FRAGMENTS, FUELS, OILS, LUBRICANTS AND HYDRAULIC, RADIATOR OR BATTERY FLUIDS; CONCRETE AND RELATED CUTTING OR CURING RESIDUES; FLOATABLE WASTES; WASTES FROM ENGINE/EQUIPMENT STEAM CLEANING OR CHEMICAL DEGREASING; WASTES FROM STREET CLEANING; AND SUPER-CHLORINATED POTABLE WATER FROM LINE FLUSHING AND TESTING. DURING CONSTRUCTION, DISPOSAL OF SUCH MATERIALS SHOULD OCCUR IN A SPECIFIED AND CONTROLLED TEMPORARY AREA ON-SITE PHYSICALLY SEPARATED FROM POTENTIAL STORMWATER RUNOFF, WITH ULTIMATE DISPOSAL IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS.
9. RUNOFF FROM EQUIPMENT AND VEHICLE WASHING SHALL BE CONTAINED AT CONSTRUCTION SITE AND MUST NOT BE DISCHARGED TO RECEIVING WATERS OR THE LOCAL STORM DRAIN SYSTEM.
10. APPROPRIATE BMPs FOR CONSTRUCTION-RELATED MATERIALS, WASTES, SPILLS OR RESIDUES SHALL BE IMPLEMENTED TO ELIMINATE OR REDUCE TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES, OR ADJOINING PROPERTIES BY WIND OR RUNOFF.
11. ALL CONSTRUCTION CONTRACTORS AND SUBCONTRACTOR PERSONNEL ARE TO BE MADE AWARE OF THE REQUIRED BMPs AND FOOD HOUSEKEEPING MEASURES FOR THE PROJECT SITE AND ANY ASSOCIATED CONSTRUCTION STAGING AREAS.
12. DISCHARGING CONTAMINATED GROUNDWATER PRODUCED BY DEWATERING GROUNDWATER THAT HAS INFILTRATED INTO THE CONSTRUCTION SITE IS PROHIBITED. DISCHARGING OF CONTAMINATED SOILS VIA SURFACE EROSION IS ALSO PROHIBITED. DISCHARGING NON-CONTAMINATED GROUNDWATER PRODUCED BY DEWATERING ACTIVITIES MAY REQUIRE A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FROM THE REGIONAL WATER QUALITY CONTROL BOARD.
13. BMPs SHALL BE MAINTAINED AT ALL TIMES. IN ADDITION, BMPs SHALL BE INSPECTED PRIOR TO PREDICTED STORM EVENTS AND FOLLOWING STORM EVENTS.
14. AT THE END OF EACH DAY OF CONSTRUCTION ACTIVITY, ALL CONSTRUCTION DEBRIS AND WASTE MATERIALS SHALL BE COLLECTED AND PROPERLY DISPOSED OF IN TRASH OR RECYCLE BINS.

ISLAND-II



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| DESIGNED BY: PKK | | | | | |
| DRAWN BY: PKK | | | | | |
| CHECKED BY: R.R. | | | | | |

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KEN A. SELMANS, POC No. 09910
 CITY ENGINEER
 CITY OF LAKE ELSINORE



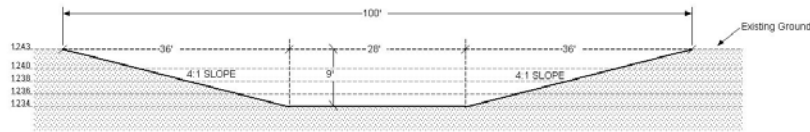
CITY OF LAKE ELSINORE
 130 S. MAIN STREET
 LAKE ELSINORE, CA 92530

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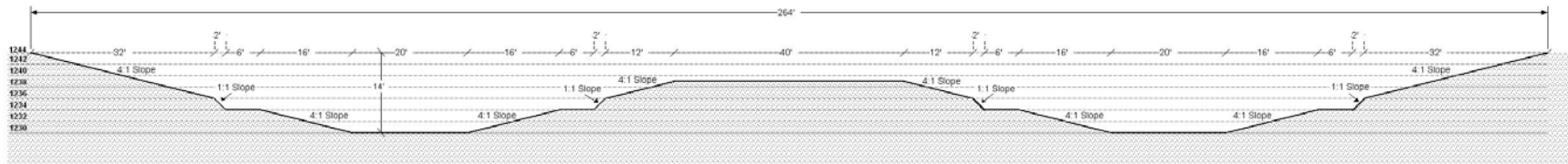
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CITY OF LAKE ELSINORE
**EXCAVATION & GRADING
 WETLANDS PROJECT
 EXCAVATION & GRADING PLAN**

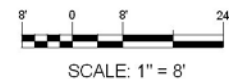
SHEET No.
2
 OF 6 SHEETS
 FILE No.
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A
SECTION
3



B
SECTION
3



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KEN A. BEUMALG, RCE No. 55915
CITY ENGINEER
CITY OF LAKE ELSINORE

DATE: _____



CITY OF LAKE ELSINORE
130 S. MAIN STREET
LAKE ELSINORE, CA 92530

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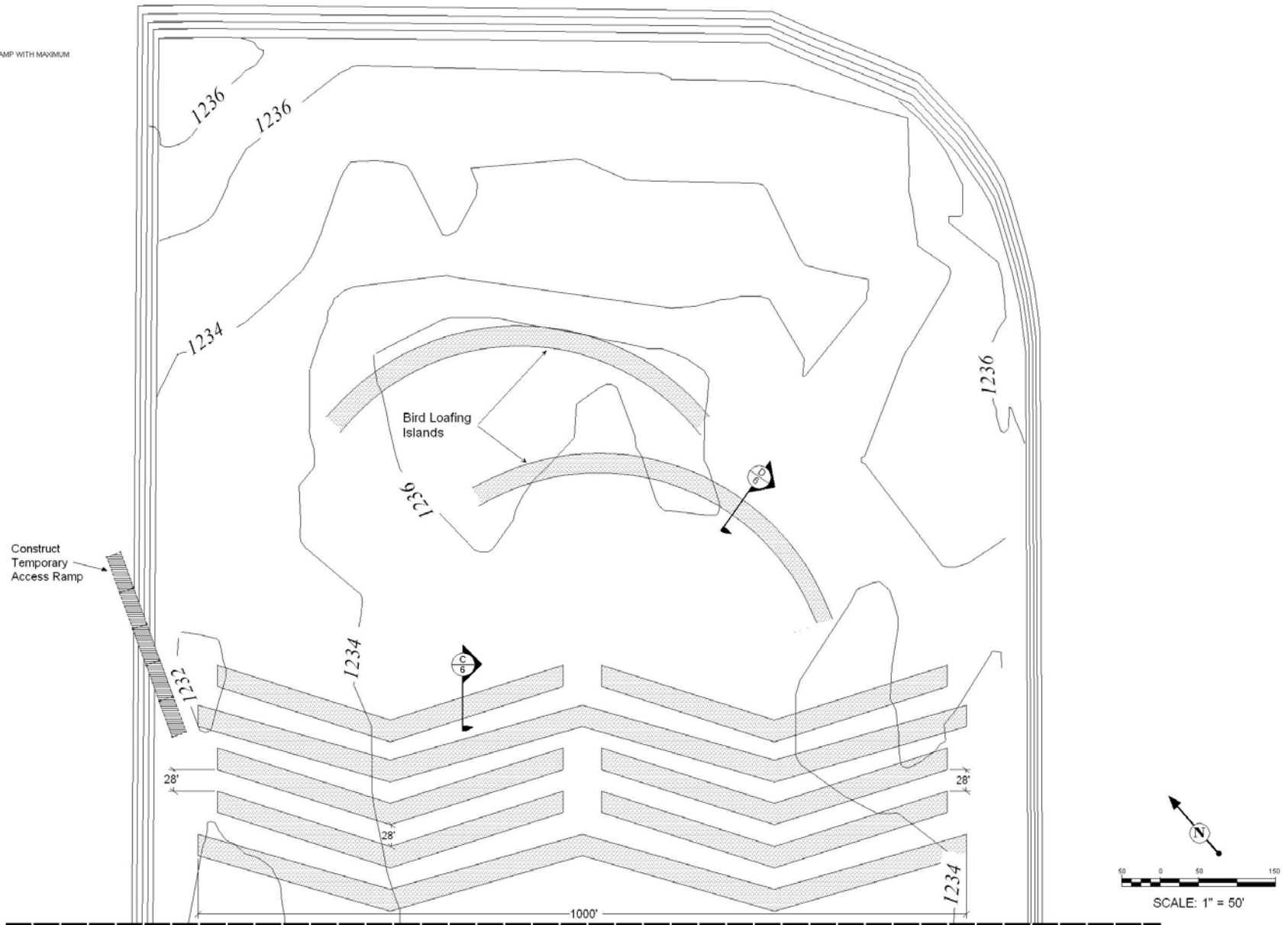
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CITY OF LAKE ELSINORE
DETAILS
WETLANDS PROJECT
EXCAVATION & GRADING PLAN

SHEET No.
3
OF 6 SHEETS
FILE No.
XX

CONSTRUCTION NOTES

1. CONSTRUCT TEMPORARY ACCESS RAMP WITH MAXIMUM SLOPE < 10%.



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 KEN A. SELMAUS, RCE No. 50915
 CITY ENGINEER
 CITY OF LAKE ELSINORE

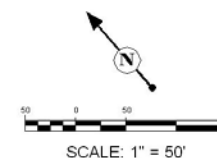


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CITY OF LAKE ELSINORE
FILL ISLANDS
WETLANDS PROJECT
FILL ISLANDS PLAN

SHEET No.
4
 OF 6 SHEETS
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KEN A. SEIMALO, PCE No. 50915
CITY ENGINEER
CITY OF LAKE ELSINORE

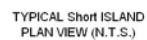
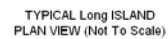


**CITY OF LAKE ELSINORE
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CITY OF LAKE ELSINORE
FILL ISLANDS
WETLANDS PROJECT
FILL ISLANDS PLAN

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|--------------------|----------|
| SHEET No. | 5 |
| OF 6 SHEETS | |
| FILE No. | |



TYPICAL RIBBON ISLAND
SECTION VIEW (N.T.S.)



TYPICAL BIRD LOAFING ISLAND
SECTION VIEW (N.T.S.)