

## C. Mitigation Monitoring Plan

Lodi Gas Storage, LLC (LGS), is proposing to use a depleted natural gas reservoir in the Kirby Hills gas field in southeastern Solano County, California, as a temporary storage facility for natural gas transported to the site by its customers. The total storage capacity of the reservoir is approximately 7 billion cubic feet (BCF) and the project will have a maximum injection and withdrawal capability of 100 million cubic feet per day (MMcf/day) of natural gas. Project operations would involve tapping into the PG&E 400 pipeline near mile 286.65, constructing facilities to convey natural gas from the PG&E 400 pipeline approximately seven miles to the Kirby Hills gas field, storing the gas in the existing natural reservoir, withdrawing the stored gas on demand from Lodi Gas Storage customers, and conveying the withdrawn gas to the PG&E 400 pipeline for delivery to those customers. Project components include a metering station, gas pipeline, compressor station, flow lines, injection/withdrawal wells, and a temporary gas injection system.

An Initial Study was prepared to assess the proposed project's potential environmental effects. The Initial Study was prepared based on information in the Proponent's Environmental Assessment (PEA), project site visits, and supplemental research. The majority of the proposed project's impacts would occur during project construction. Within LGS's application, Applicant-Proposed Measures (APM) were proposed to reduce potentially significant adverse impacts related to project construction and operation.

The purpose of this Mitigation Monitoring Plan is to ensure effective implementation of the APM, as well as mitigation measures imposed by the CPUC and agreed to by LGS.

This plan includes:

- The mitigation measures, which LGS must implement as part of the proposed project, followed by the Applicant-Proposed Measures that LGS has made part of the proposed project and is responsible for implementing;
- The actions required to implement these measures;
- Monitoring requirements; and
- Timing of implementation for each measure (see Table C-2).

A CPUC-designated environmental monitor shall carry out all construction field monitoring to ensure full implementation of all measures. In all instances where non-compliance occurs, the CPUC's designated environmental monitor shall issue a warning to the construction foreman and LGS's project manager. Continued non-compliance shall be reported to the CPUC's designated project manager. Any decisions to halt work due to non-compliance shall be made by the CPUC. The CPUC's designated environmental monitor shall keep a record of any incidents of non-compliance with mitigation measures, APM, or other conditions of project approval. Copies of these documents shall be supplied to LGS and the CPUC.

### Major Required Plans and Reports

The mitigation measures and permitting requirements of various other regulating agencies require LGS to prepare several plans and obtain approval for these documents prior to construction of the Kirby Hills Natural Gas Storage Facility. Major requirements are listed in Table C-1.

**Table C-1. Major Plans and Reports Required to be Submitted by LGS**

Plan or Report Title	Mitigation Measure (or APM)	Required to Initiate Construction?
BAAQMD Final Permit	APM AIR-1	yes
Sensitive Biological Habitat Survey Findings	BIO-1 and APM B-2	yes
Burrowing Owl Survey Findings	APM B-5	yes
Migratory Bird and Raptor Nesting Survey Findings (this report is one of two options that would be implemented by LGS)	APM B-6	yes
Paleontological Resources Discovery and Management Plan	APM C-1	yes
Engineering and Geology Studies and Injection Plan	APM G-1	yes
Independent Third-party Design Review Report	HZ-1	yes
Phase II Site Assessment	HZ-2	yes
Hazardous Materials Contingency Plan	APM HZ-2	yes
Health and Safety Plan	APM HZ-2	yes
Construction Safety and Emergency Response Plan	APM HZ-3	yes
Construction Traffic Plan	APM T-1	yes
Storm Water Pollution Prevention Plan	APM SR-1	yes

The CPUC also reviews these documents. Table C-1 includes some plans that are not required prior to construction, but which would likely be submitted during the construction phase. These plans and reports would be reviewed within 30 days of the CPUC's receipt of the completed submittal.

## Review Procedures

The CPUC monitoring team, including the CPUC project manager and technical experts, will review all reports and provide comments. Comments will be provided to LGS on these documents to devise an effective and feasible plan to accomplish the intended reduction in impacts, including assurance that objective performance criteria are in place before monitoring begins. Deliverables sent to LGS and the CPUC will include a report on each plan or permit reviewed, in addition to a copy of the plan itself with marginal notes or comments, if appropriate. Each plan will be approved, once it is determined that it is in compliance with the required mitigation measure and that changes (if required) have been made.

## Reference Documents

Documents that guide the field monitoring efforts, and which will serve as essential references for the Kirby Hills Natural Gas Storage Facility, include the following:

- Figure C-1: Unanticipated Biological Resource Discovery Flowchart
- Figure C-2: Temporary Extra Work Space Request Sheet
- Figure C-3: Unanticipated Discovery of Cultural Resources Flowchart
- Figure C-4: Unanticipated Discovery of Human Remains Flowchart

Note: These figures appear after Table C-2.

**Table C-2. Mitigation Monitoring Program**

Impact	Measure	Monitoring Requirements	Timing of Action
<b>MITIGATION MEASURES</b>			
<b>Air Quality</b>			
Construction dust	<b>AQ-1.</b> During high wind events, defined as periods with sustained gusts over 25 mph, construction areas (unpaved roads, excavation areas, disturbed areas) that have visible dust emissions shall be watered no less frequently than every hour at the source of origin of those visible emissions; and activities causing visible dust emissions that remain visible for more than 100 feet from their point of origin will be discontinued or those activities reduced to limit the visible dust plume to less than 100 feet from their point of origin. Additionally, during high winds construction activities within one-half mile of any downwind residence that cause visible fugitive dust will be discontinued when the visible dust plumes that remain visible for more than 50 feet past their point of origin.	CPUC site visit to verify compliance.	During construction.
Construction equipment exhaust emissions	<b>AQ-2.</b> All diesel fueled construction equipment will be fueled with diesel fuel meeting CARB ultra low sulfur (15 ppm max) certification specifications.	CPUC to verify compliance.	During construction.
Construction equipment exhaust emissions	<b>AQ-3.</b> All diesel fueled off-road construction equipment with engines 50 hp or larger will at a minimum meet USEPA/CARB Tier 1 engine standards. Records of equipment compliance will be kept by the general construction contractor. This measure does not apply to equipment permitted by the local air quality district or certified through the CARB's Statewide Portable Equipment Registration Program. This also does not apply to any single specialized equipment items that will be used for less than 5 days total during the project construction.	CPUC to review equipment specification to verify compliance.	During construction.
Construction equipment exhaust emissions	<b>AQ-4.</b> The (1) pipeline construction, (2) metering station construction, and (3) overhead power line construction within the Y-SAQMD jurisdiction (i.e., east of Olsen Road) shall be completed so none of these three construction activities are active on the same given day as another one of these three construction activities.	CPUC site visit to verify compliance.	During construction.
<b>Biological Resources</b>			
Degrade sensitive biological habitats	<b>BIO-1.</b> The construction specifications will require that a qualified biologist, who has been trained to conduct wetland delineations, identify sensitive biological habitat on site and identify areas to avoid during construction.	CPUC to review survey report and monitor construction activities for compliance.	Prior to and during construction.
<b>Hazards and Hazardous Materials</b>			
Hazard to the public or the environment through reasonably foreseeable upset	<b>HZ-1.</b> An independent, third party design review shall be conducted of the Applicant's construction drawings and specifications. Project construction shall also be independently monitored to ensure compliance with all applicable laws, ordinances, regulations, and standards. The applicant shall make payments to the CPUC for these design review, plan check and construction inspection services. These design review and construction observation services shall not in any way relieve the applicant of its responsibility and liability for the design, construction, operation, maintenance, and emergency response for these facilities.	CPUC to review third party review report and monitor construction activities for compliance.	Prior to construction.

**Table C-2. Mitigation Monitoring Program**

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Located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5	<b>HZ-2.</b> Prior to construction within the portion of the land west of Shiloh Road leased by LGS that will be disturbed by construction activity ("LGS leased land"), a Phase II site investigation shall be conducted to further evaluate whether a spill or release of hazardous materials has occurred on those sites on the portion the LGS leased land within Kirby Hills identified by the Phase I Environmental Site Assessment submitted by LGS (ERM, 2005). Samples should be taken at those locations on the LGS leased land identified in Appendix G of LGS' Phase I Environmental Site Assessment and analyzed for VOCs and petroleum hydrocarbons following standard EPA protocol. If the Phase II investigation sampling program finds environmental impacts on the LGS leased land, additional research shall be conducted to verify if other unrecorded sumps were used within the particular impacted LGS leased land. If other sumps are discovered within the particular LGS leased land, additional Phase II soil sampling activities shall be conducted to delineate the extent of contamination and recommend appropriate action.	CPUC shall review report and monitor construction activities for compliance with the report.	Prior to construction.
<b>Traffic and Transportation</b>			
Increase in traffic congestion	<b>TRA-1.</b> Lodi Gas Storage and/or the construction contractor shall schedule construction traffic, including construction worker and material delivery trips, to avoid peak traffic commute hours along State Route 12. Carpooling of the construction workforce shall also be encouraged.	CPUC site visit to verify compliance.	Prior to during construction.
<b>APPLICANT-PROPOSED MEASURES</b>			
<b>Aesthetics</b>			
Visual impacts	<b>APM A-1.</b> The following measures would be implemented as part of the proposed project to minimize visual impacts of the project and be consistent with Solano County's general plan polices. <ul style="list-style-type: none"> <li>• Construction disturbances would be minimized to help reduce contrast between exposed soils and naturally vegetated and clearing of vegetation and trees at facilities sites would be minimized.</li> <li>• Disturbed agricultural land would be replanted following pipeline construction (if requested by the landowner).</li> <li>• Facilities would be painted with non-glare, earthtone colors to blend with the surrounding vegetation/ landscape.</li> <li>• Shielded, non-glare lighting would be used at facilities.</li> </ul>	CPUC site visit to verify compliance.	Prior to during construction.

**Table C-2. Mitigation Monitoring Program**

Impact	Measure	Monitoring Requirements	Timing of Action
<b>Air Quality</b>			
Construction air pollutant emissions	<p><b>APM AIR-1.</b> The following applicable measures would be implemented as part of the proposed project to minimize dust emissions and to be consistent with BAAQMD guidelines for reducing construction impacts to a less than significant level.</p> <ul style="list-style-type: none"> <li>• Water all active construction areas at least twice daily.</li> <li>• Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard.</li> <li>• Pave, apply water three times daily, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.</li> <li>• Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites.</li> <li>• Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.</li> <li>• Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for 10 days or more).</li> <li>• Enclose, cover, water twice daily, or apply (non-toxic) soil binders to exposed stockpiles (e.g., dirt and sand).</li> <li>• Limit traffic speeds on unpaved roads to 15 mph.</li> <li>• Install sandbags or other erosion control measures to prevent silt runoff to public roadways.</li> <li>• Replant vegetation in disturbed areas as quickly as possible.</li> <li>• Install wheel washers for all exiting trucks or wash off the tires or tracks of all trucks and equipment leaving the site.</li> <li>• Limit the area subject to excavation, grading, and other construction activity at any one time.</li> </ul> <p>Lodi Gas Storage also commits to installing BACT to reduce emissions from the natural gas compressor units.</p> <p>Lodi Gas Storage would provide the CPUC with evidence that it has complied with the requirements of the BAAQMD. This evidence shall be in the form of a final permit from the BAAQMD. The final permit would be provided to the CPUC prior to the beginning of construction of the compression facility.</p>	CPUC site visit to verify compliance and CPUC to verify LGS receipt of BAAQMD Final Permit.	During construction.
<b>Biological Resources</b>			
Disturbance by construction equipment outside of the work zone.	<p><b>APM B-1.</b> Lodi Gas Storage would identify work areas and would ensure that:</p> <ul style="list-style-type: none"> <li>• Construction activities, equipment, and associated activities (e.g., staging areas) are confined to the designated work zone, and</li> <li>• Areas supporting sensitive resources (e.g., nearby seasonal wetlands and special-status plant population) are avoided.</li> </ul> <p>Construction equipment would be confined to a designated work zone (including access roads) in the project area. Before ground-disturbing activities are initiated, the work zone would be clearly staked and flagged.</p> <p>Wetland areas and special-status species would be protected and avoided to the extent feasible as part of the proposed project. Where feasible, all adjacent waters and wetlands would be avoided and would be designated as exclusion zones during the preconstruction phase.</p>	CPUC site visit to verify compliance.	During construction.

**Table C-2. Mitigation Monitoring Program**

Impact	Measure	Monitoring Requirements	Timing of Action
Disturbance of habitat during construction activities.	<p><b>APM B-2.</b> The construction specifications will require that a qualified biologist identify sensitive biological habitat onsite and identify areas to avoid during construction. Sensitive communities in the area that generally would be required for construction, including staging and access, will be fenced off to avoid disturbance in these areas. The Lodi Gas Storage's contractor will install orange construction barrier fencing to identify environmentally sensitive areas. Sensitive resources that occur in and adjacent to the construction area include the following areas:</p> <ul style="list-style-type: none"> <li>• Seasonal wetland communities and associated special-status species (VPFS and VPTS) habitat located along the access roads in the Kirby Hills and east of Olsen Road (see PEA Figure 3.3-1).</li> <li>• The stock pond that occurs in the Kirby Hills and provides potential habitat for VPFS, VPTS, and California tiger salamander.</li> <li>• The unnamed seasonal drainage that crosses Shiloh Road.</li> <li>• Occupied burrowing owl habitat (identified during preconstruction surveys).</li> <li>• Occupied raptor nests.</li> <li>• The population of bearded popcorn-flower located along the Kirby Hills access road. The fencing will be installed at least 20 feet from the edge of the population. Prior to construction, Lodi Gas Storage will retain a botanist to conduct a survey in April (or May, depending on rainfall levels in 2006). The botanist will flag the outer extent of the populations and identify the fencing location.</li> </ul> <p>Before construction, the contractor will coordinate with a resource specialist to identify the locations for the barrier fencing and will place stakes around the sensitive resource sites to indicate these locations. The protected area will be designated an environmentally sensitive area and clearly identified on the construction specifications. The fencing will be installed before construction activities are initiated and will be maintained throughout the construction period. The following paragraph will be included in the construction specifications:</p> <p>The Contractor's attention is directed to the areas designated as "environmentally sensitive areas." These areas are protected, and no entry by the Contractor for any purpose will be allowed unless specifically authorized in writing by the CPUC. The Contractor will take measures to ensure that Contractor's forces do not enter or disturb these areas, including giving written notice to employees and subcontractors.</p> <p>Temporary fences around the environmentally sensitive areas will be installed as the first order of work. Temporary fences will be furnished, constructed, maintained, and removed as shown on the plans, as specified in the special provisions, and as directed by Lodi Gas Storage.</p>	CPUC shall review the Sensitive Biological Habitat Survey Report findings and monitor construction activities for compliance with the report.	Prior to and during construction.
Disturbance of the California tiger salamander.	<p><b>APM B-3.</b> To minimize disturbance and mortality of adult and juvenile California tiger salamander within underground burrows, Lodi Gas Storage or its contractor will minimize the extent of ground-disturbing activities within upland habitat (grasslands within 2,100 feet of suitable breeding habitat) by limiting the work area to the minimum area necessary for construction.</p>	CPUC site visit to verify compliance.	During construction.

**Table C-2. Mitigation Monitoring Program**

Impact	Measure	Monitoring Requirements	Timing of Action
Construction monitoring of California tiger salamander habitat.	<p><b>APM B-4.</b> A qualified wildlife biologist will monitor all construction activities within California tiger salamander upland habitat. The biologist will look for California tiger salamander during grading, excavation, and vegetation removal activities. If a California tiger salamander is discovered, construction activities will cease until the salamander has moved out of the construction work unassisted or a qualified biologist removes the salamander from the construction area and releases the animal near a suitable burrow at least 300 feet away from the construction area.</p> <p>Prior to the start of daily construction activities, the biological monitor will inspect open trenches to look for trapped California tiger salamanders. If a salamander is found, the monitor will remove the salamander from the trench and release the animal into a suitable burrow at least 300 feet away from the construction area.</p> <p>Handling of California tiger salamanders can be conducted only by a USFWS-approved biologist or as permitted under a biological opinion or project-specific authorization by USFWS.</p>	CPUC site visit to verify compliance.	During construction.
Disturbing the burrowing owl.	<p><b>APM B-5.</b> The Staff Report on Burrowing Owl Mitigation, published by CDFG (1995), recommends that preconstruction surveys be conducted to locate active burrowing owl burrows in the construction area and in a 250-foot-wide buffer zone around the construction area. Lodi Gas Storage or its contractor will retain a qualified wildlife biologist to conduct preconstruction surveys for active burrows according to DFG guidelines. The preconstruction surveys will include a nesting season survey and a wintering season survey conducted in the winter and spring/summer prior to construction of the proposed project. If no burrowing owls are detected, then no further mitigation is required. If active burrowing owls are detected in the survey area, the following measures will be implemented.</p> <ol style="list-style-type: none"> <li>1. Occupied burrows will not be disturbed during the nesting season (February 1–August 31). Whenever avoidance is feasible, no disturbance should occur within 160 feet of occupied burrows during the non-breeding season (September 1–January 31) or within 250 feet during the breeding season (February 1–August 31).</li> <li>2. When destruction of occupied burrows is unavoidable during the non-nesting season (September 1–January 31), unsuitable burrows will be enhanced (enlarged or cleared of debris) or new burrows created (installing artificial burrows) at a ratio of 2:1 on nearby protected lands approved by DFG. Newly created burrows will follow the guidelines established by DFG.</li> <li>3. If owls must be moved away from the construction area, passive relocation techniques (e.g., installing one-way doors at burrow entrances) will be used instead of trapping. At least 1 week will be necessary to accomplish passive relocation and allow owls to acclimate to alternate burrows.</li> <li>4. If owls must be moved away from the construction area, the project proponent or its contractor will acquire and permanently protect a minimum of 6.5 acres of foraging habitat per occupied burrow identified in the construction area. The protected lands should be located adjacent to the occupied burrowing owl habitat in the study area or at another occupied site near the study area. The location of the protected lands will be determined in coordination with DFG. Lodi Gas Storage also will prepare a monitoring plan, and provide long-term management and monitoring of the protected lands. The monitoring plan will specify success criteria, identify remedial measures, and require an annual report to be submitted DFG.</li> </ol>	CPUC shall review the Burrowing Owl Survey Report and monitor construction activities for compliance with the report.	During construction.

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Impact	Measure	Monitoring Requirements	Timing of Action
Disturbing migratory birds and raptors.	<p><b>APM B-6.</b> Causing the abandonment or removing active nests (with eggs or young) of Swainson's hawk, northern harrier, loggerhead shrike, grasshopper sparrow, horned lark, and many other non-special-status migratory birds and raptors violates the State Fish and Game Code and the federal MBTA. To avoid this impact, Lodi Gas Storage or its contractor will implement one of the following two options as part of the proposed project.</p> <ol style="list-style-type: none"> <li>1. Conduct all construction activity (including vegetation pruning or removal) during the non-breeding season (generally between August 16 and February 28) for most special-status and non-special-status migratory birds; or</li> <li>2. If construction activities are scheduled to occur during the breeding season for these species (generally between March 1 and August 15), retain a qualified wildlife biologist to conduct the following focused nesting surveys within the appropriate habitat: <ul style="list-style-type: none"> <li>• Tree- and shrub-nesting surveys within and adjacent to the construction work area to look for Swainson's hawk, northern harrier, loggerhead shrike, and other non-listed migratory birds and raptors.</li> <li>• Ground-nesting surveys in annual grasslands within and adjacent to the construction work area to look for northern harrier, grasshopper sparrow, horned lark, and other non-listed migratory birds.</li> </ul> </li> </ol> <p>The surveys will be conducted within 1 week prior to initiation of construction activities and at any time between March 1 and August 15. If no active nests are detected during surveys, then no additional mitigation is required.</p> <p>If surveys indicate that special-status or non-special-status migratory bird nests are found in the survey area and could be affected by construction activities, a no-disturbance buffer will be established around the site to avoid disturbance or destruction of the nest site until after the breeding season or after a qualified wildlife biologist determines that the young have fledged (generally late June to mid-July). The extent of these buffers will be determined by the biologist (coordinating with DFG) and will depend on the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. These factors will be analyzed in order to make an appropriate decision on buffer distances.</p> <p>If construction activities are scheduled to occur within an area that supports an active nest site or within an established no-disturbance buffer, then construction would be delayed until after the breeding season or until the young have fledged (as determined by the biologist).</p>	CPUC shall review the Migratory Bird and Raptor Nesting Survey Report if it is selected as the measure option and monitor construction activities for compliance with the report.	Prior to and during construction.



**Table C-2. Mitigation Monitoring Program**

Impact	Measure	Monitoring Requirements	Timing of Action
<b>Cultural Resources</b>			
Degradation of encountered paleontological resources.	<p><b>APM C-1.</b> A paleontological resources discovery and management plan would be developed and implemented as part of the proposed project to avoid potential impacts on these resources. This plan would include review of final construction plans to determine which portions of the project would affect paleontologically sensitive sediments that lie deeper than 10 feet below the surface.</p> <p>If potentially significant fossils (defined as deposits that are unique, or that may reasonably be expected to assist in the evaluation of specific areas of research or expand our understanding of prehistory) are encountered, the Lodi Gas Storage would initiate the following measures:</p> <ul style="list-style-type: none"> <li>• Stop construction in the immediate vicinity of the fossil find until they are removed.</li> <li>• Arrange for recovery of fossils by a qualified paleontologist and curation of scientifically prepared specimens in an accredited institution.</li> </ul>	CPUC shall review the Paleontological Resources Discovery and Management Plan and monitor construction activities for compliance with the report.	Prior to and during construction.
Degradation of encountered archeological cultural resources.	<p><b>APM C-2.</b> Lodi Gas Storage and its construction contractor will take the steps specified below during project construction. If buried cultural resources, such as chipped or ground stone, historic debris, building foundations, or human bone are discovered inadvertently during ground-disturbing activities, work will stop in that area and within 100 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with Solano County, the State Historic Preservation Officer, and other appropriate agencies. In the event that human remains are encountered, Mitigation Measure CR-2 [APM C-3] will be implemented.</p>	CPUC site visit to verify compliance.	During construction.
Degradation of encountered human remains.	<p><b>APM C-3.</b> If human remains of Native American Origin are discovered during project construction, it will be necessary to comply with state laws relating to the disposition of Native American burials, which fall under the jurisdiction of the Native American Heritage Commission (NAHC) (Public Resources Code, Section 5097). If any human remains are discovered or recognized in any location other than a dedicated cemetery, there will be no further excavation or disturbance of the site, or any nearby area reasonably suspected to overlie adjacent human remains, until:</p> <p>The Solano County Coroner has been informed and has determined that no investigation of the cause of death is required and if the remains are of Native American origin,</p> <ul style="list-style-type: none"> <li>• The descendants of the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code, Section 5097.98, or</li> <li>• NAHC is unable to identify a descendant or the descendant fails to make a recommendation within 24 hours after being notified by the NAHC</li> </ul>	CPUC site visit to verify compliance.	During construction.

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Impact	Measure	Monitoring Requirements	Timing of Action
<b>Geography and Soils</b>			
Integrity of the natural gas reservoir.	<b>APM G-1.</b> The California Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR) is responsible for wells drilled into an underground gas storage facility. Lodi Gas Storage would complete engineering and geology studies and an injection plan and submit them to the division for approval. These studies would describe the well drilling and abandonment plans; reservoir characteristics; all geologic units, aquifers, and oil and gas zones; and the monitoring system to ensure that injected gas is confined to the intended zone. Lodi Gas Storage would be required to post a bond with DOGGR to ensure proper completion or abandonment of any well drilled.	CPUC shall review the Engineering and Geology Studies and Injection Plan and monitor construction activities for compliance with the report.	Prior to construction.
Seismic hazards	<b>APM G-2.</b> The project would be designed to meet the seismic safety standards of the Uniform Building Code. Specific design measures may include, but are not limited to, special foundation design, additional bracing and support of upright facilities (e.g., tanks, exhaust stacks), and weighting the pipeline in areas of potential liquefaction. In addition, automated leak detection, isolation, and shutdown controls would limit the secondary effects of equipment damage. Project facilities and foundations would be designed to withstand changes in soil density. When the detailed engineering design of the project is completed, it would be submitted to the DOT, Office of Pipeline Safety (which provides oversight of pipeline construction, operation, and safety) and the DOGGR (which provides oversight of design, installation, and operation of gas wells).	CPUC to implement Mitigation Measure HZ-1 (see above).	Prior to construction.
Erosion	<b>APM G-3.</b> The most basic way to avoid erosion is to minimize site disturbance. To minimize site disturbance and ensure that impacts are avoided or reduced to less than significant levels, the construction contractor would be directed to: <ul style="list-style-type: none"> <li>• Remove only the vegetation that is absolutely necessary to remove,</li> <li>• Avoid off-road vehicle use outside the work zone,</li> <li>• Avoid excessive trips along the right-of-way or access or public roads, and</li> <li>• Instruct all personnel on stormwater pollution prevention concepts to ensure that all are conscious of how their actions affect the potential for erosion and sedimentation.</li> </ul> Construction inspectors would be on site during all construction activities and would reinforce the importance of confining all vehicular traffic to the existing right-of-way and public access roads.	CPUC site visit to verify compliance.	Prior to and during construction.
Post construction site disturbance.	<b>APM G-4.</b> The contractor would be directed to perform initial site cleanup immediately following construction activities. Initial cleanup includes removing debris and spoils and restoring original contours. Initial cleanup conducted as part of the construction contributes significantly to overall site stability and facilitates final cleanup. The site would begin to stabilize naturally with little additional disturbance during final cleanup. A site that is not initially cleaned up is more susceptible to erosion.	CPUC site visit to verify compliance.	Prior to and during construction.
Erosion	<b>APM G-5.</b> Proper compaction of subsurface soil serves as an erosion control measure. Uncompacted plow or trench furrows are susceptible to subsurface erosion through the migration of surface and subsurface water. Proper compaction of the subsurface material and plow furrows is necessary to help prevent surface and subsurface migration of water along the plow or trench furrow, and to prevent trench settlement.	CPUC site visit to verify compliance.	During construction.

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Erosion	<b>APM G-6.</b> A trench plug is a permanent mechanical erosion control measure consisting of soil-filled burlap bags placed in the excavated trench before backfilling. This also can be accomplished by substituting standard pipe backfill materials with a short length of impervious materials such as clay or slurry cement. Trench plugs serve to control erosion by arresting subsurface water flow. Trench plugs are placed in the trench at regular intervals along areas with steep slopes. The spacing is determined by slope grade, topography, and soil characteristics.	CPUC site visit to verify compliance.	During construction.
Erosion	<b>APM G-7.</b> Seeding consists of sowing soil-stabilizing grasses on areas disturbed by construction activities —except cropland and areas surfaced with pavement or gravel. Vegetation serves to control both erosion and sedimentation. The root structure of the vegetation holds soil in place to resist erosion. Grasses slow the flow of surface water, allowing suspended particles to settle. All disturbed areas would be reseeded immediately after construction activities are completed. Reseeding would use species that are appropriate to the site and acceptable to the landowner.	CPUC site visit to verify compliance.	Subsequent to construction.
<b>Hazards and Hazardous Materials</b>			
Contamination from construction equipment.	<b>APM HZ-1.</b> The equipment used for the proposed project would require periodic maintenance and refueling. To reduce the potential of contamination by spills, no refueling, storage, servicing, or maintenance of equipment would be performed within 100 feet of sensitive environmental resources. No refueling or servicing would be done without absorbent material or drip pans underneath to contain spilled fuel. Any fluids drained from the machinery during servicing would be collected in leakproof containers and taken to an appropriate disposal or recycling facility. If such activities result in spillage or accumulation of a product on the soil, the contaminated soil would be assessed and disposed of properly. Under no circumstances would contaminated soils be added to a spoils pile.  Mobile refueling trucks likely would be used for onsite refueling of construction equipment. The refueling trucks would be independently licensed and regulated to haul and dispense fuels, to ensure that the appropriate spill prevention techniques are implemented.  All maintenance materials (i.e., oils, grease, lubricants, antifreeze, and similar materials) would be stored at offsite staging areas. If these materials are required during field operations, they would be placed in a designated area away from site activities and sensitive resources.  During construction, all vehicles and equipment required on site would be parked or stored at least 100 feet from waterbodies, wetlands, known archaeological sites, and other sensitive resource areas. These areas would be identified on the construction drawings, as appropriate. All wash-down activities would be conducted at least 100 feet from sensitive environmental resources (e.g., seasonal wetlands and the seasonal drainage along Shiloh Road).	CPUC site visit to verify compliance.	During construction.

**Table C-2. Mitigation Monitoring Program**

Impact	Measure	Monitoring Requirements	Timing of Action
Accidental spills during construction.	<p><b>APM HZ-2.</b> The following measures would be incorporated into the construction contract specifications to address hazardous materials generated from construction-related activities.</p> <ul style="list-style-type: none"> <li>• Diesel fuel and petroleum-based lubricants would be stored only at designated staging areas.</li> <li>• All hazardous material spills or threatened releases, including petroleum products such as gasoline, diesel, and hydraulic fluid — regardless of the quantity spilled — must be immediately reported if the spill has entered or threatens to enter a water of the State, or has caused injury to a person or threatens injury to public health.</li> </ul> <p>Lodi Gas Storage would prepare a Hazardous Materials Contingency Plan that would be implemented if an accidental spill occurs or if any subsurface hazardous materials are encountered during construction. Provisions outlined in this plan would include phone numbers of county and state agencies and primary, secondary, and final cleanup procedures.</p> <p>In addition, Lodi Gas Storage would require that the project contractor prepare a Health and Safety Plan (HSP) to ensure that no impacts would occur if hazardous soils or other materials are encountered during construction of the project. The HSP would include elements that establish worker training, engineering controls, and monitoring. The HSP also would establish security measures to prevent unauthorized entry to cleanup sites and to reduce hazards outside the investigation/cleanup area.</p>	CPUC shall review the Hazardous Materials Contingency Plan and Health and Safety Plan and monitor construction activities for compliance with the report.	Prior to and during construction.
Fire risk	<p><b>APM HZ-3.</b> The Montezuma Hills and project area are classified as a high grassfire risk area due to the dry, grassland environment and strong winds (Solano County, 1977). Lodi Gas Storage recognizes the potential for increased fire risk during summer construction activities. For this reason, Lodi Gas Storage would develop fire management measures as part of their construction safety and emergency response plan for use during construction and operation. The Plan would include notification procedures and emergency fire precautions, such as the following mitigation measures:</p> <ul style="list-style-type: none"> <li>• All internal combustion engines, stationary and mobile, shall be equipped with spark arresters, meeting Agency standards.</li> <li>• Spark arresters shall be in good working order.</li> <li>• Light trucks and cars with factory-installed (type) mufflers, in good condition, may be used on roads where the roadway is cleared of all vegetation.</li> <li>• Smoking signs and fire rules shall be posted on the project bulletin board at the Contractor's field office and areas visible to employees during the fire season.</li> <li>• Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials.</li> <li>• Installation of fire extinguishers at the compressor station and metering station.</li> <li>• Employee training in use of extinguishers and communication with the Montezuma Hills Fire District.</li> <li>• Periodic inspections by the Montezuma Hills Fire District.</li> </ul> <p>It is expected that the implementation of this plan would sufficiently mitigate increased fire risk.</p>	CPUC shall review the Construction Safety and Emergency Response Plan and monitor construction activities for compliance with the report.	Prior to and during construction.

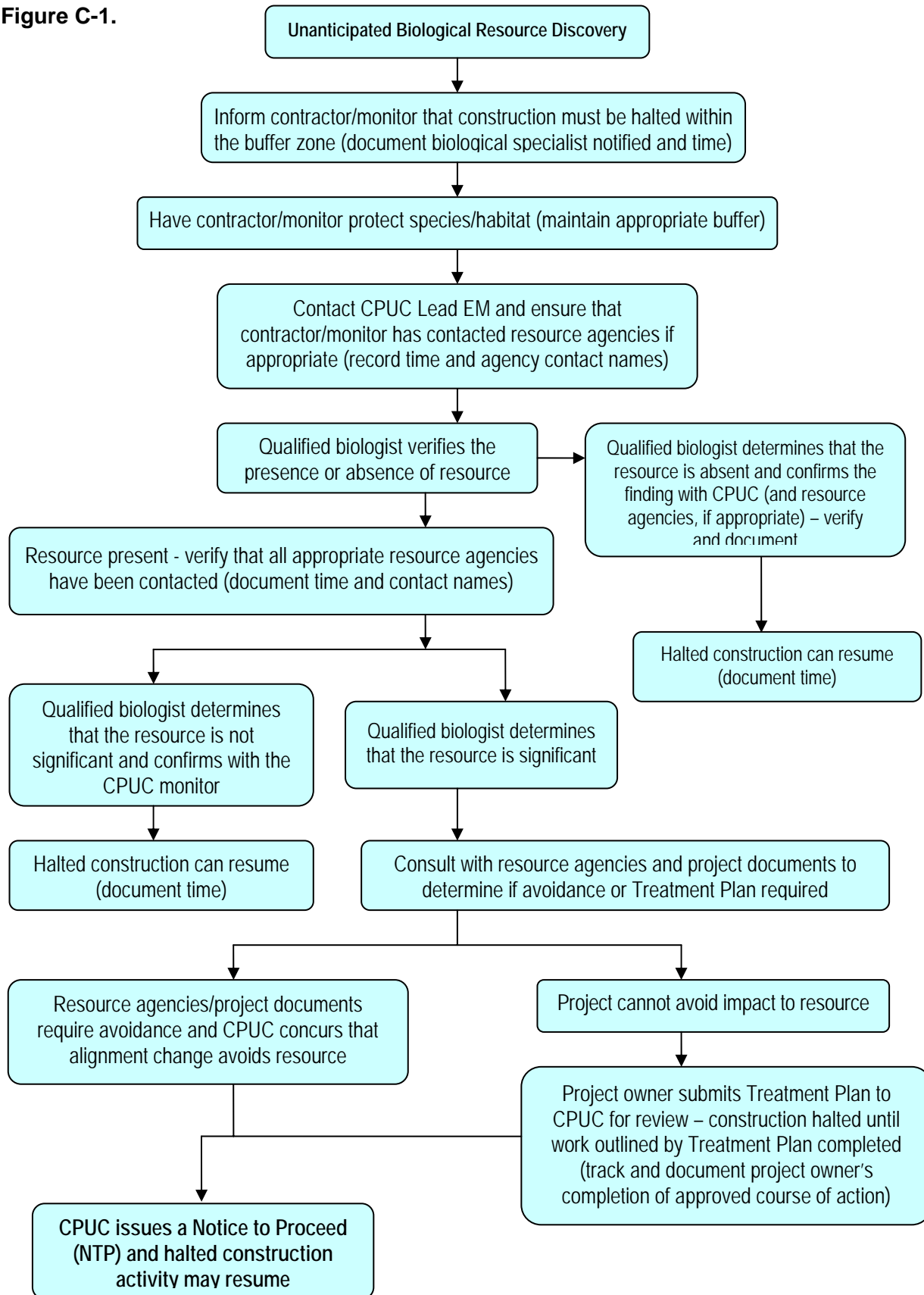
**Table C-2. Mitigation Monitoring Program**

Impact	Measure	Monitoring Requirements	Timing of Action
<b>Noise</b>			
Construction noise	<p><b>APM N-1.</b> The following measures would be incorporated into the construction contract specifications to reduce and control noise generated from construction-related activities.</p> <ul style="list-style-type: none"> <li>• Restrict construction within 1,000 feet of occupied dwelling units to daytime hours between 7 a.m. and 7 p.m. on weekdays, Saturdays, and non-holidays, unless written approval is obtained from the resident.</li> <li>• Ensure that all construction equipment has sound-control devices no less effective than those provided on the original equipment. No equipment would have an unmuffled exhaust.</li> <li>• Implement appropriate additional noise-reducing measures, including but not limited to:               <ul style="list-style-type: none"> <li>– Changing the location of stationary construction equipment,</li> <li>– Shutting off idling equipment,</li> <li>– Rescheduling construction activity, and</li> <li>– Notifying nearby residents in advance of construction work.</li> </ul> </li> </ul>	CPUC site visit to verify compliance.	Prior to and during construction.
Compressor station noise	<p><b>APM N-2.</b> Lodi Gas Storage shall implement recommended treatments 7.1 through 7.8 in the Hoover &amp; Keith noise report ("Kirby Hills Gas Storage Project – Results of Noise Impact Analysis for a Proposed New Natural Gas Storage Project," Hoover &amp; Keith, 2005) to ensure that noise from the compressor facility does not exceed County noise compatibility standards at the duck club or the nearest residence (50 dBA-Ldn) or at the property line (60 dBA-Ldn).</p>	CPUC site visit to verify compliance.	Prior to construction.
<b>Transportation and Circulation</b>			
Construction traffic and congestion	<p><b>APM T-1.</b> Lodi Gas Storage would prepare a Construction Traffic Plan to minimize short-term construction-related impacts on local traffic. These measures would include installation of temporary warning signs at appropriate locations along Birds Landing Road and Shiloh Road (and other roads if determined necessary). The signs would be placed at strategic locations near the site access location and would indicate "Construction Traffic Ahead," "Trucks Entering and Exiting 50 Feet Ahead," or an equivalent message. The signs would be removed after all construction-related activities are completed. The construction traffic plan would include, but not be limited to, the following measures:</p> <ul style="list-style-type: none"> <li>• Coordinate with the County on any lane or road closures, if needed to construct improvements.</li> <li>• Install traffic control devices as specified in the California Department of Transportation's Manual of Traffic Control for Construction and</li> <li>• Maintenance Works Zones.</li> <li>• Provide alternative routes (detours), as necessary, to route local traffic around roadway construction.</li> <li>• Provide notification of any road closures to residents in the vicinity of construction.</li> <li>• Provide access to driveways, private roads, and farm roads outside the immediate construction zone.</li> <li>• Consult with emergency service providers and develop an emergency access plan for emergency vehicle access in and adjacent to the construction zone.</li> </ul>	CPUC shall review the Construction Traffic Plan and monitor construction activities for compliance with the report.	Prior to and during construction.

**Table C-2. Mitigation Monitoring Program**

Impact	Measure	Monitoring Requirements	Timing of Action
<b>Site Reclamation</b>			
Erosion	<p><b>APM SR-1.</b> Site reclamation is the final element of the proposed project. The short-term objectives of reclamation are to control accelerated erosion and sedimentation and to minimize impacts on adjacent waters, land uses, and other sensitive resources. Properly executed construction practices and timely progress would minimize impacts to environmental resources. Long-term reclamation objectives include erosion and sedimentation control, as well as reclamation of topography to preconstruction conditions. The reclamation effort would involve restoration of temporary access roads (where necessary), and installation of erosion control measures that comply with Solano County Public Works Department requirements. Lodi Gas Storage would also prepare a SWPPP that describes when, where, and how the site reclamation BMPs would be implemented (see discussion of "Erosion and Sediment Control" below). The State Water Resources Control Board would review and approve this plan prior to construction.</p>	CPUC shall review the Storm Water Pollution Prevention Plan and monitor construction activities for compliance with the report.	Prior to and during construction.
<b>Restoration of Pipeline Right of Way</b>			
Erosion	<p><b>APM RP-1.</b> Following installation of the pipeline, the right-of-way would be graded to preconstruction grades and contours and would be seeded with an appropriate seed mix. The seed mix would be composed of the appropriate mix of species and acceptable to the landowner.</p>	CPUC site visit to verify compliance.	Prior to operation.

Figure C-1.



**Figure C-2. Temporary Extra Work Space Request**

**Kirby Hills Natural Gas Storage Facility**

Segment: \_\_\_\_\_

Location/Address \_\_\_\_\_ City/County \_\_\_\_\_

Proposed Use of Site \_\_\_\_\_

Proposed Date(s) of Use \_\_\_\_\_ Proposed Hours of Use \_\_\_\_\_

Adjacent Land Uses \_\_\_\_\_

LGS Permit Coordinator (Prepared by) \_\_\_\_\_ Date \_\_\_\_\_

Biological, cultural, and paleontological reconnaissance surveys are mandatory for use of any areas containing vegetation, or exposed earth that have not been previously surveyed and fully described in project documents. Biological surveys are mandatory for all temporary extra work sites. Attach a diagram of the proposed area that identifies the location of the site and proximity to sensitive resources or receptors.

\* Complete the environmental checklist below. Note: **Yes** answers require additional clarification and should be submitted as an attachment to this form.

Environmental Checklist	Yes*		No		CPUC Verified
<b>Air Quality:</b> Would equipment be on site or idled for more than 10 minutes? Would there be dust-producing activities?					
<b>Biological Resources A:</b> Would use of the site result in potential impacts to sensitive biological resources.					
<b>Biological Resources B:</b> Is the site located within the Central and Coastal NCCP?					
<b>Cultural/Paleontological Resources:</b> Would clearing or grading be required?					
<b>Water Resources:</b> Would runoff from the site flow into storm drains or a waterway? Would equipment refueling or maintenance be performed? Would materials block/impact storm drains or gutters?					
<b>Land Use and Recreation:</b> Would use of site block access to local land uses and recreational areas?					



Environmental Checklist	Yes*	No	CPUC Verified
<b>Noise:</b> Are noise-sensitive receptors (e.g., homes, schools, hospitals, churches convalescent homes, parks, recreational areas) adjacent to the site?			
<b>Socioeconomic:</b> Would access to business be blocked? Would there be disruption of business operations?			
<b>Traffic:</b> Would parking be eliminated? Would increased construction traffic result in impacts? Is the site a residential area?			
<b>Visual:</b> Would lights at site create glare for adjacent land uses (including roadways)?			

Standard Conditions of Approval

- *The CPUC, via its designated Environmental Monitor, will review and approve/deny the Temporary Extra Work-space Request (TEWS) request within four business days of receiving this completed form.*
- Use of TEWS is limited to 60 days. First proposed date of use: \_\_\_\_\_
- Use of TEWS shall be in compliance with local ordinances (including traffic/noise) and mitigation measures.
- If any signs of cultural resources are identified, work shall cease immediately and the site shall be reevaluated.
- The proposed site shall not be used for storage of fuel or hazardous materials.
- All drips, leaks, and/or spills from vehicles and/or equipment shall be cleaned-up immediately and disposed of in appropriate, labeled containers.
- Adjacent streets shall be swept or cleaned with water at the end of each workday if visible soil material is carried on them.
- No parking or storage of vehicles (including personnel vehicles), equipment, pipe, or any other project-related item shall be allowed on adjacent roadways.
- If a complaint is received, it shall be forwarded to the LGS Permit Coordinator, the CPUC Environmental Monitor, and the CPUC Lead Environmental Monitor for review.

The following signatures indicate that the proposed site is approved for TEWS. On a random basis, a CPUC Environmental Monitor will verify that use of the proposed site is in accordance with the conditions noted. This approval may be revoked at any time by any one of the approval team. Failure to comply with all conditions will result in immediate revocation of this TEWS approval.

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Property Owner Date

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LGS Construction Date

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LGS Permit Coordinator Date

|The above TEWS request and attached documentation have been reviewed and this request is APPROVED \*\*/ DENIED (circle one).

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CPUC Environmental Monitor Date

**\*\*Additional CPUC Conditions of Approval**

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(CPUC Monitor Initial \_\_\_\_\_)

REASON(S) FOR DENIAL: \_\_\_\_\_

Figure C-3.

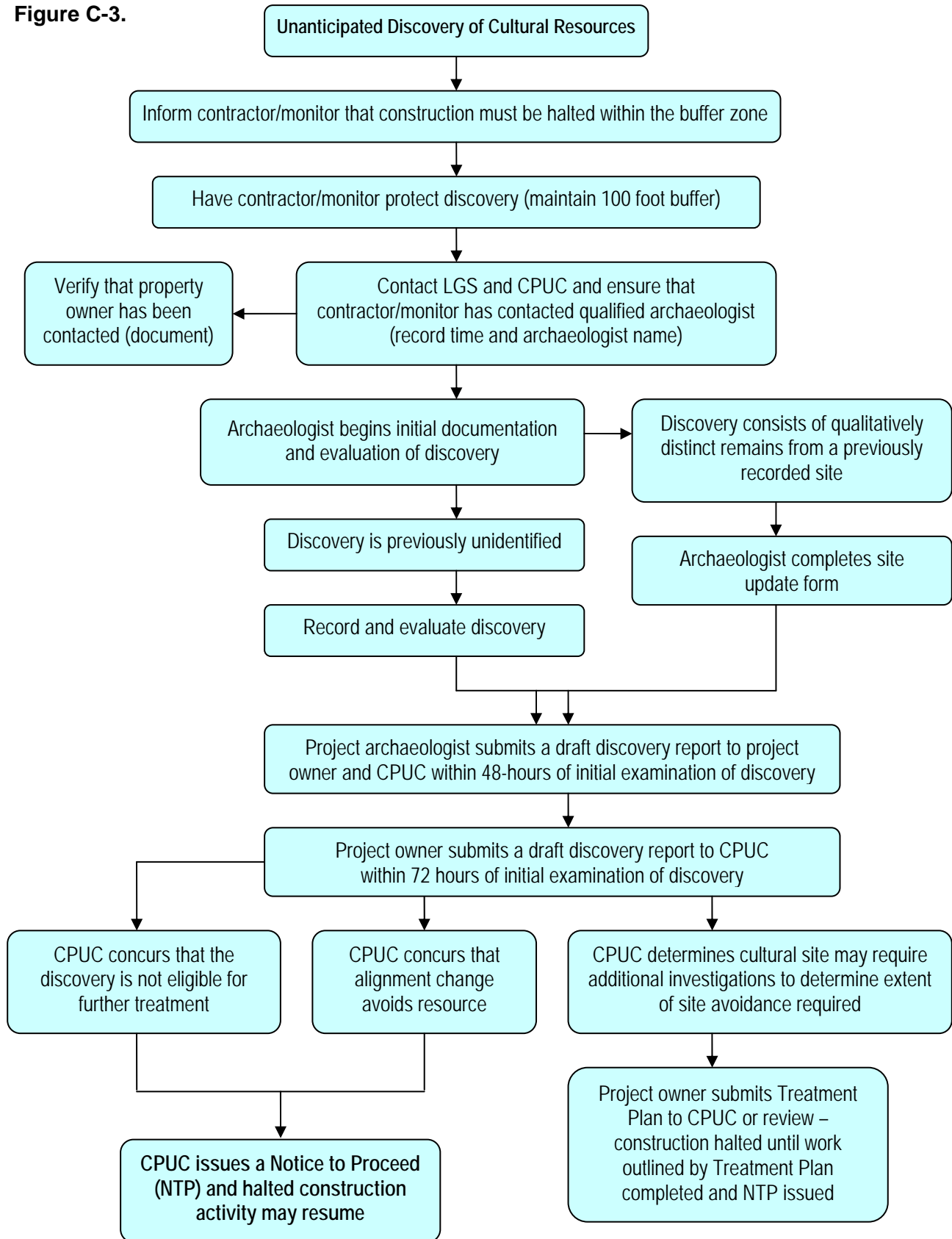


Figure C-4.

