Wetland Mitigation Plan

2800 Highway One, Albion, California (APN 123-350-04)

CDP-57-2008 Marr & Malin

EXHIBIT NO. 13
APPLICATION NO.
A-1-MEN-09-034
MARR & MALIN
WETLAND MITIGATION PLAN
(1 of 17)

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1.0 Project Description

This mitigation plan addresses the compensatory mitigation requirements for the impacts to wetlands by the proposed project. This mitigation plan provides the guidelines for the expansion and enhancement of wetlands on site.

1.1 Location

The project site is an approximately 4-acre parcel zoned rangeland, east of Highway 1 and within the California Coastal Zone. It is located at 2800 Highway One, Albion, California (APN 123-350-04). It occurs on the SW ¼ of Section 28, Township 16 N, Range 17 W of the Mount Diablo Base Meridian.

1.2 Project Description

The proposed project is to construct a single family residence and associated structures. See coastal development permit for a full description of the project. The components of the project that necessitate a wetland mitigation plan are those activities that cause impacts to wetlands or their buffers, namely the paved driveway apron and the rocked road.

1.3 Project Impacts

Two components of the project impact wetlands or their buffers: an asphalt driveway apron and gravel driveway and a longer segment of gravel driveway. The asphalt apron and gravel road covers 500 ft^2 of wetland (1-parameter seasonally wet meadow based on vegetation); approximately 1/3 (~167 ft^2) is covered by the asphalt and 2/3 (~333 ft^2) is covered by permeable gravel. The gravel driveway covers 4800 ft^2 (~400' x 12') of nonnative perennial grassland within the 50' buffer to a different section of the same wetland (See Table 1.)

Table 1. Summary of Project Impacts and Mitigation

Project Components	Area	Volume	Habitat Impacted	Wetland Expansion	Area of Wetland Enhancement	Method of Wetland Enhancement	Mitigation Ratio
Asphalt driveway apron / gravel driveway	500 ft^2	250 ft^3	Wetland	1300 ft^2	0	-	2.6:1
Gravel Driveway	4800 ft^2 (~400' x 12')	2400 ft^3	Wetland Buffer	0 ft^2	5200 ft^2	Invasive Plant Removal	1.08:1
					2700 ft^2	Periwinkle/bearded iris	
					2500 ft^2	Himalaya blackberry	

1.4 Description of Proposed Compensatory Wetland Mitigation Site

The impacted wetland is a small portion of a larger wetland, which is partly defined by low-growing, herbaceous, hydrophytic plants. The wettest part of the wetland, and smallest part, is the lowest area downslope of the Hwy 1 berm, which undoubtedly impounds water to some extent. This is also the area of greater cover of native wetland plants. Most of the wetland, including the impacted area, is characterized by slightly more than 50% wetland plants and a thick cover of nonnative perennial grasses. Away from the wettest part of the wetland, in portions of the easement where the driveway apron and road are proposed and elsewhere, there is often a greater cover of wetland plants where there is annual mowing. In general, the wetland and upland buffer where the road and driveway are proposed is not of high wetland value.

1.5 Background

Originally, the project was going to include a driveway apron approximately 225' northward of the currently proposed location. This site coincided with the lowest point on the eastern side of the Highway 1 berm and consequently with the highest quality wetland. The reason for the originally proposed location was to comply with CalTrans' line-of-sight standards for driveway approaches. It was believed to be too dangerous to use the existing ranch road entrance as it was too close to the arch in Highway 1 where traffic proceeds southbound off of the Salmon Creek Bridge. Any new

approach south of the existing ranch road entrance is unfeasible due to the steep through-cut created during the construction of Highway 1 many years ago.

To avoid significant impacts to the wetland, the applicant and Mendocino County planner proposed the existing ranch road as an alternative. A CalTrans permit inspector agreed that modifications to the existing cut slope, including annual brushing, could afford a safe line-of-sight from the highway and from the existing ranch road entrance. This new alignment avoids placing the proposed driveway apron (a CalTrans requirement) and rocked road through the seasonally wet meadow as shown in the previous wetland delineation information. However, the paved driveway apron and rocked road unavoidably crosses a small portion (500ft^2) of the seasonal wetland. There is no feasible way to enter the property without crossing some portion of the wetland. This alternative, using the existing driveway entrance area and ranch road, is the least environmentally impacting alternative.

2.0 Ecological Assessment of Project Site

2.1 Ecological Assessment of Wetland Impact Site

2.1a Habitat Assessment

2.1a.1 Plants

Plant species encountered are listed in Table 2 and their wetland indicator status was identified (Reed 1988). This gives a summary of the abundance of wetland plants. No plants with an "obligate" status were present. The dominant plant was the nonnative creeping bent grass (*Agrostis stolonifera*). No special-status plant species were present. Plants in the wetland are the best (only) indicator of a wetland at this site.

Table 2. Summary of Plant Cover on Wetland Impact Site

Species	Stratum	Status	Percent Cover	Cumulative Cover >50%	Cover >=20%	Dominant
Agrostis stolonifera	Herbaceous	FACW	60%	60%	Yes	Yes
Eryngium armatum		FACW	40%		Yes	Yes
Anthoxanthum odoratum		FAU	15%		No	No
Juncus tenuis		FACW	2%		No	No
Carex gynodynama		NI	2%		No	No
			119%	59.5%	23.8%	

2.1a.2 Animals

The wetland does not support habitat for any animals typical of wetland habitats. There is no standing water for amphibians. A song sparrow (*Melospiza melodia*) was seen nearby in upland scrub, and a common ringlet butterfly (*Coenonympha tullia*) was seen in the adjacent upland grassland. Insects would seem to be the most common or abundant wildlife that would use the wetland, but none were identified. Also, there is no habitat for aquatic insects due to the lack of water in the wetland.

2.1a.3 Hydrology

No wetland pits were dug in the 500 ft^2 of impacted wetland during the previous wetland delineation, as this was not proposed as an impacted site. Therefore, a pit was dug to identify the characteristics of the soil and make observations of any hydrology. No saturation or standing water was present to a depth of 21".

The site is connected to the larger wetland based on the presence of wetland plants, and to some extent, the presence of marginally wet soils. However, no hydrology is present to contribute to the "wetland" habitat, which in turn does not function as a contributing element to the wetland.

Approximately two thirds of the driveway apron/driveway impact is covered in permeable gravel, which will allow water to percolate into the soil and not significantly change or diminish water infiltration for this small area.

2.1a.4 Soil

Generally, the soil is a dark prairie soil, primarily clayey-loam. Soil from the soil pit had a Munsell (GretagMacBeth 2000) matrix color (moist) of 10YR 2/3 but there with less than 1% mottles (5YR 5/6), and is not classified as a wetland soil. The soil map unit name is Dystropepts 30-75% slopes and is not on the list of National List of Wetland Soils (NRCS 2005).

2.1a.5 Surrounding Habitat

The surrounding habitat to the north and south and generally within approximately 100' has been delineated as the same or similar type of wetland. To the east, the nonnative perennial grasses become dominant, the topography becomes steeper and the habitat becomes upland. To the west is Hwy. 1 with an area of upland scrub between the wetland and Hwy 1.

2.1b Function

The ecological processes that the wetland performs describe its function. They are expressions of the physical (e.g., topography), chemical (e.g., soil, water quality), and biological (e.g., species and how they use the wetland habitat) attributes of the wetland. Since the impacted wetland has no standing water or subsurface saturation, the complexity of its function is greatly diminished. An observation of the downslope area behind the berm 225' northward illustrates this point.

Where the water saturates the soil, the plants' roots must be adapted to growing in a high water table in order to survive. Plants that occur in this depression are those that almost always occur in wetlands (plants with an indicator status of "obligate," OBL). In the impacted wetland, the lack of hydrology means that plants usually occurring in wetlands (plants with an indicator status of "facultative wetland," FACW), as well as plants that usually occur in non-wetlands but are occasionally found in wetlands (plants with an indicator status of "facultative upland," FACU) both occur on the site. Furthermore, the nonnative creeping bentgrass (FACW) is a poor example of a facultative wetland plant on the Mendocino Coast as it frequently occurs in non-wetland sites such as dry sandy-loam soils, roadsides, and upland ruderal habitats. The dominance of wetland plants on the impacted wetland is probably due more to the occasional mowing, which reduces the herbaceous wetland plants' competition for light, water, and nutrients, than due to the inherent quality of the site. For nearby, there is a dominance of nonnative perennial grasses that does not constitute wetland vegetation.

The wetland does not apparently function as habitat for any wildlife other than non-aquatic insects, which probably occur in lesser numbers than surrounding upland areas with taller grass and shrubs. Its function is, in part, providing the edaphic conditions for some plants that occasionally to frequently occur in wetlands. The wetland contributes to the marginal areas of low quality wetland surrounding a higher quality wetland (the one that is downslope and next to the berm).

In general, it can be said that this impacted wetland is of overall low quality and little value for the following reasons: it lies on a topographically convex location, lacks hydrology, lacks hydric soil, is covered with a predominance of nonnative grasses that frequently occur in upland areas, and does not provide habitat for a diversity of wetland plants or habitat for animals normally associated with wetlands. The value of the impacted wetland lies in the ability to act as a buffer to a larger wetland of higher quality. It does provide "area" around the high quality wetland, but the upland areas do this as well.

2.2 Ecological Assessment of Buffer Encroachment Site

2.2a Habitat Assessment

The existing unsurfaced ranch road that is proposed to be rocked (approximately 400' section of 12' wide road) is not expected to have any significant effect on the wetland or diminish the qualities of the buffer itself as a protective feature for the wetland. The gravel road is porous and will not significantly affect the runoff patterns during rain.

2.2a.1 Plants

The dominant plants in the upland area from the wetland are sweet vernal grass (*Anthoxanthum odoratum*) and creeping bent grass, both nonnative perennial grasses. As discussed above, it is not uncommon to find the latter, a facultative wetland plant, in upland areas.

2.2a.2 Animals

The wetland buffer, like the impacted wetland, does not support habitat for any animals typical of wetland habitats. It is part of a large nonnative perennial grassland that is grazed by livestock.

2.2a.3 Hydrology

The buffer to the wetland is that area that was described as an upland, non-wetland, area. No hydrology is present.

2.2a.4 Soil

Generally, the soil is a dark prairie soil, primarily clayey-loam, lighter (higher chroma) than the wetland soil, and without oxidation.

2.2a.5 Surrounding Habitat

The wetland buffer is very similar habitat to the wetland.

2.2b Function

There are no wetland functions of the buffer – no habitat for a dominance of wetland plants occurs, nor is there any notable wildlife habitat. The role that this area plays in context of the wetland is that it is an undeveloped area adjacent to a seasonally wet meadow, providing a transition into upland areas. Additionally, it does not function as habitat value for wildlife. The placement of gravel on the ranch road will still allow for the percolation of water into the upland areas above the wetland, and does not increase the area of impervious surface within the buffer. There are no significant impacts to the wetland or its buffer by rocking the road.

3.0 Mitigation

3.1 Mitigation Goals

In order for this project to support the goal of no-net-loss of wetlands, wetland expansion as a form of mitigation for the loss of wetlands is proposed. This choice results in an expansion of existing wetland area and an increase in wetland function at a ratio of 2.6:1. The ratio is a direct expression of area, however there is also an increase of value for the proposed planting of native plants; the impacted wetland is dominated with a nonnative grass.

Wetland enhancement is proposed as mitigation for the encroachment into a wetland buffer. The improvements to the wetland and its buffer will result in increased wetland function and value at a ratio of 1.08:1.

The goal, objectives, and performance standards of the mitigation are given below.

Goal: Replace the impacted wetland by expanding a larger wetland having similar functions and ecological values at a ratio of 2.6:1, and to mitigate the encroachment into a wetland buffer by enhancing the existing wetland and its buffer at a ratio of 1.08:1.

The ratio of the enhancement area is based on square footage; however the number would be much larger if a standard metric for the value of removing nonnative plants were used. It is clear that the invasive weeds are expanding, especially the bearded iris, and through time they would overtake the vegetation of the wetland, including the rare and native plants.

Table 3. Summary of Mitigation Objectives and Performance Standards

Objectives	Performance Standard
Plant a 1300ft^2 area adjacent to the existing wetland with hydrophytic plants.	The hydrophytic vegetation will cover 1300ft^2, and within two years, the cover of native hydrophytic species will be at least 75% in this area as measured by ocular estimation.
Remove invasive plants covering 5200 ft^2 in the existing wetland and its buffer.	After two years, presence of bearded iris (*Watsonia bulbifera*), periwinkle (*Vinca major*), and Himalaya blackberry (*Rubus armeniacus*) not greater than 15% as estimated by ocular estimation in designated weed removal area. After 5 years, no occurrences of aforementioned weeds within the same area.

3.2 Ecological Assessment of Mitigation Site

3.2a Wetland Expansion

3.2a.1 Habitat Assessment

3.2a.1.1 Plants

The difference between the proposed wetland expansion site and the impacted wetland site is subtle; both are dominated by nonnative grasses that are not good indicators of wetlands. The mitigation site has several species of wetland plants, but they are not present with enough cover to characterize the site as a wetland.

Plant species on the site are listed below and their wetland indicator status is identified. This gives a summary of the abundance of wetland plants.

Table 4. Summary of Plant Cover on Wetland Expansion Site

Species	Stratum	Status	Percent Cover	Cumulative Cover >50%	Cover >=20%	Dominant
Anthoxanthum odoratum	Herbaceous	FACU	50%	50%	Yes	Yes
Briza maxima		NI	30%	80%	Yes	Yes
Eryngium armatum		FACW	10%		No	No
Holcus lanatus		FAC	10%		No	No
Hypochaeris radicata		FACU	5%		No	No
Sisyrinchium bellum		FAC+	5%		No	No
Briza minima		FACU	<5%		No	No
Rubus ursinus		FAC+	<5%		No	No
Vulpia bromoides		FACU	<5%		No	No
			116%	58%	23.2%	

3.2a.1.2 Animals
The wetland does not support habitat for any animals typical of wetland habitats. Like the impacted wetland, there is no standing water for amphibians or aquatic insects.

3.2a.1.3 Hydrology
A soil pit was dug in the wetland expansion site to characterize the soil and presence of hydrology, if any. No saturation or standing water was present to depth of 21".

3.2a.1.4 Soil
The soil is similar to the soil in the impacted wetland site; it is a dark prairie soil, primarily clayey-loam. Soil from the soil pit had a Munsell matrix color (moist) of 10YR 2/3 with no redoximorphic features, and is not classified as a wetland soil. The soil map unit name is the same as the impacted wetland. Some areas of similar soil support the species to be used for wetland expansion, making the wetland expansion site suitable for such species.

3.2a.1.5 Surrounding Habitat
The surrounding habitat is similar to that of the impacted wetland; nonnative perennial grasses are dominant up the slope to the east.

3.2a.2 Function
The wetland expansion site is designed to permanently increase the larger wetland's function as habitat for wetland plants. The impacted wetland site has a dominance of nonnative perennial grass that is equally abundant in upland sites as it is in wetland sites. The expanded wetland will be planted with native perennial wetland plants, increasing the size of the existing wetland by greater than 2.5 times the size of the impacted wetland, and creating a dominance of native plants. Because the species used for expanding the wetland are present in some areas of similar soil, they are suitable for planting.

3.2b Wetland and Buffer Enhancement

3.2b.1 Habitat Assessment
Portions of the wetland enhancement (i.e., the area of nonnative invasive species) are immediately adjacent to the wetland; the majority of the wetland enhancement occurs within the area delineated as wetland. This enhancement contributes more value to the wetland than the actual wetland expansion as it eliminates the threat of nonnative weeds expanding further into a wetland with rare plants.

3.2b.1.1 Plants
The objective of wetland enhancement for this project is to remove invasive nonnative plants. The targeted plants for removal are three perennial plants, bearded iris (*Watsonia* bulbifera), periwinkle (*Vinca* major), and Himalayan blackberry (*Rubus armeniacus*).

3.2b.1.2 Animals
The area of the wetland and its buffer where the invasive weeds are growing does not support habitat for any animals typical of wetland habitats. Like the impacted wetland, there is no standing water for amphibians or aquatic insects where enhancement is proposed.

3.2b.1.3 Hydrology
The enhancement area does not have any areas of standing water, and hydrology is not a factor is measuring success of enhancement.

3.2b.1.4 Soil
Soil is not a metric for this wetland enhancement.

3.2b.1.5 Surrounding Habitat

The surrounding habitat is similar to that of the impacted wetland; nonnative perennial grasses are dominant up the slope to the east. Highway 1 is immediately to the west of the enhancement area.

3.2b.2 Function

Most of the wetland and buffer enhancement is in the wetland, although the enhancement of the buffer area is equally as important. Since the primary objective of the wetland enhancement is to remove invasive nonnative plants, the value of the wetland and its buffer as habitat for native species is greatly increased. Without removal of these nonnative plants, primarily the bearded iris, the wetland, including the small area with rare plants, will eventually loose the plant diversity that occurs there now.

While the area of wetland and wetland buffer enhancement is slightly greater than the area of wetland buffer encroachment from the proposed graveled road, the value is many times greater than a one-to-one ratio. The buffer encroachment has little value of a wetland buffer because there are no ecological elements, if any, that function as a wetland. It is primarily an area of nonnative grasses adjacent to a low-quality wetland. The wetland and the wetland buffer proposed for enhancement will stop the spread of invasive weeds in an area that is closer to the part of the wetland with greater ecological value (rare wetland plants, saturated soils, wetland plants, i.e. ecological elements that describe functioning wetlands).

3.3 Mitigation Site

3.3a Site Plan

The site plan for the mitigation site (Appendix B) depicts the location of the mitigation strategies that will be used to achieve the goals and objectives described above. To create a similar wetland as the impacted wetland, no grading is proposed. Topographic contours of the expanded wetland and enhanced wetland are not a metric for evaluating the success of the mitigation as there is no modification to the natural topography or modified topography of the highway berm.

3.3b Design Methods

To accomplish the mitigation goals and objectives, the following methods are proposed.

Objective 1. Plant a 1300ft^2 area adjacent to the existing wetland with hydrophytic plants.

> Performance Standard: The hydrophytic vegetation will cover 1300ft^2, and within two years, the cover of native hydrophytic species will be at least 75% in this area as measured by ocular estimation.
>
> Method: One gallon container nursery stock or divisions from on site will be used for planting: 50 Pacific rush (*Juncus effusus*) and 150 slough sedge (*Carex obnupta*). Plants will be planted approximately 30" on center to cover 1300ft^2. Monitoring for 5 years will provide results to determine if contingency planting is needed. If so, more planting will occur in the same manner until the performance standards are met. Planting will occur with the consultation of a qualified biologist, restoration specialist, or wetland specialist to determine correctness of species and planting locations. Monitoring and reporting will be conducted by the same qualified personnel.

Objective 2. Remove invasive plants covering 5200 ft^2 in the existing wetland and its buffer.

> Performance Standard: After two years, presence of bearded iris (*Watsonia bulbifera*), periwinkle (*Vinca major*), and Himalaya blackberry (*Rubus armeniacus*) not greater than 15% as estimated by ocular estimation in designated weed removal area. After 5 years, no occurrences of aforementioned weeds will occur within the same area.

Method: Bearded iris, periwinkle and Himalayan blackberry will be removed from the wetland and the immediate area by methods approved by CalTrans, since most of the weeds are on the highway right-of-way. Typical methods of weed removal are chemical and mechanical. If the latter is used, bulbs of iris, runners of periwinkle, and small root wads of Himalayan blackberry must be removed from the soil and disposed off site (preferably in plastic bags) in a location where they will not lead to another infestation. Monitoring for 5 years will ensure weed infestations are eradicated, and will be conducted by a qualified biologist, restoration specialist, or wetland specialist; weed removal can occur by anyone with the ability to properly identify the target species.

3.4 Monitoring Plan

The monitoring plan outlines the methods by which data are collected for demonstrating that the performance standards have been met. Additionally, reporting the results of monitoring will determine if contingency planning needs to be implemented.

3.4a Variables Measured

Wetland Expansion: Vegetation cover is the only variable that is needed to be measured in order to meet the goals of the mitigation.

Wetland Enhancement: Vegetation, or presence/absence of targeted plants, is the measured variable.

3.4b Sampling Method

Wetland Expansion: A marker, such as flagging, will be placed on the adjacent fence as a reference point to the boundary of the expanded wetland. Using the site plan, four ocular estimations of absolute plant cover will be made, one each on 25% of the expanded wetland. Absolute cover will only include dominant plant as determined by the same method used in wetland delineations (USACOE, 2010). Total species composition will also be recorded. A qualified biologist or wetland specialist will perform sampling.

Wetland Enhancement: Visual inspection of the wetland enhancement site will determine presence or absence of the three target weeds: periwinkle, bearded iris, and Himalaya blackberry. Using the site plan and a reference point from Highway 1, ocular estimation of cover of these weeds across the entire site will be used to determine percent cover. A qualified biologist or wetland specialist will perform sampling.

3.4c Monitoring Schedule

Wetland Expansion: Monitoring will occur for 5 years. The first monitoring effort will occur after the plants are planted in autumn or winter, in order to document the site immediately after implementation. The second monitoring will occur in spring to assess the success of the planting. This monitoring effort will trigger contingency planting if the set performance standards are not met. Monitoring will continue annually each spring. (See Tables 5 and 6.)

Wetland Enhancement: Monitoring will occur for 5 years. Like the monitoring for the wetland expansion, there will be an initial monitoring effort after the first invasive plant removal, likely in autumn. Another monitoring effort will occur in the following spring to assess the effectiveness of the removal efforts. This will indicate if greater effort needs to be put into the weed removal. (See Tables 5 and 6.)

3.4d Monitoring Reporting

Wetland Expansion & Wetland Enhancement: Reporting will be completed by a qualified biologist, restoration specialist, or wetland specialist. Brief reports that describe the progress of the projects relative to the performance standards will be completed at the end of the 2nd and 4th spring after project implementation. A final summary report will be completed in the winter of the 5th year after project implementation. Reports will be submitted to the California Coastal Commission, Eureka or the Mendocino County Department of Building and Planning, Fort Bragg. (See Tables 5 and 6.)

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Table 5. Wetland Expansion and Enhancement Design and Monitoring Plan

Design Plan					
Wetland Expansion Plan					
Task	**Location**	**Timing**	**Responsible Party**		
Plant one gallon container nursery stock or divisions from on site: 50 Pacific rush (*Juncus effusus*) and 150 slough sedge (*Carex obnupta*). Plants will be planted approximately 30" on center to cover 1300ft^2	See site plan.	After first rains in fall preferably, or during rainy season. Can be other times but supplemental watering may be needed.	Applicant/Landscaper in coordination with Biologist.		
Wetland Enhancement Plan					
Task	**Location**	**Timing**	**Responsible Party**		
Remove bearded iris (*Watsonia bulbifera*), periwinkle (*Vinca major*), and Himalaya blackberry (*Rubus armeniacus*) from site.	See site plan.	After first rains in fall may make ground easier to work when digging up bulbs, etc. But any time throughout the year.	Any one anyone with the ability to properly identify the target species		
Monitoring Plan					
Wetland Expansion Monitoring Plan					
Variable to Measure	**Sampling Method**	**Timing**	**Location**	**Responsible Party**	**Reporting**
Vegetative cover.	Four ocular estimations of vegetation cover of plants. Each cover estimate at 25% of site. Complete plant species inventory.	After planting and each spring thereafter.	See site plan.	Qualified biologist, wetland specialist, or restoration specialist.	Brief reports that describe the progress of the projects relative to the performance standards will be completed at the end of the 2nd and 4th spring after project implementation. A final summary report will be completed in the winter of the 5th year after project implementation. Reports will be submitted to the California Coastal Commission, Eureka or the Mendocino County Department of Building and Planning, Fort Bragg
Wetland Enhancement Monitoring Plan					
Variable to Measure	**Sampling Method**	**Timing**	**Location**	**Responsible Party**	**Reporting**
Presence or absence of target weeds: bearded iris, periwinkle, and Himalaya blackberry.	Ocular survey of presence of plant while walking perimeter of site.	After initial removal and each spring thereafter.	See site plan.	Qualified biologist, wetland specialist, or restoration specialist.	Brief reports that describe the progress of the projects relative to the performance standards will be completed at the end of the 2nd and 4th spring after project implementation. A final summary report will be completed in the winter of the 5th year after project implementation. Reports will be submitted to the California Coastal Commission, Eureka or the Mendocino County Department of Building and Planning, Fort Bragg

Table 6. Wetland Expansion and Enhancement Design and Monitoring Plan Scheduling Timeline

Task	**Schedule** (WI=Winter, SP=Spring, SU=Summer, FA=Fall)																					
	FA 01	WI 01	SP 01	SU 01	FA 02	WI 02	SP 02	SU 02	FA 03	WI 03	SP 03	SU 03	FA 04	WI 04	SP 04	SU 04	FA 05	WI 05	SP 05	SU 05	FA 06	WI 06
Wetland Expansion																						
Planting wetland plants																						
Monitoring																						
Contingency Planning (planting)																						
Wetland Enhancement																						
Removing nonnative plants																						
Monitoring																						
Reporting																						

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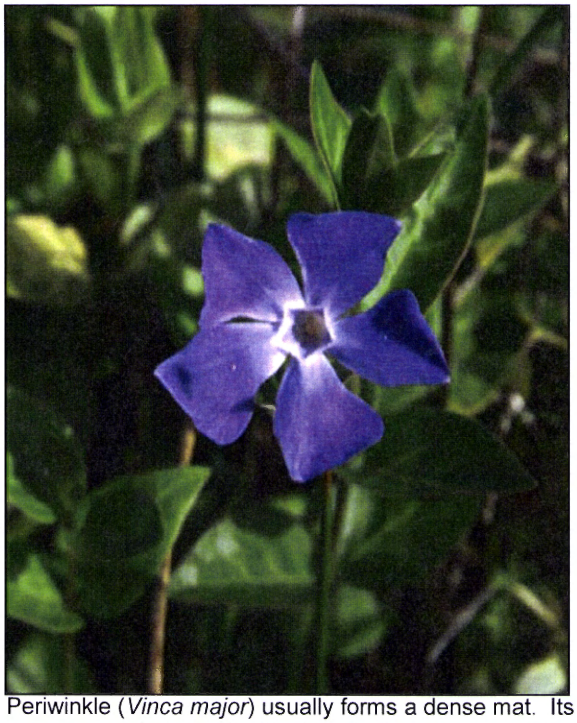
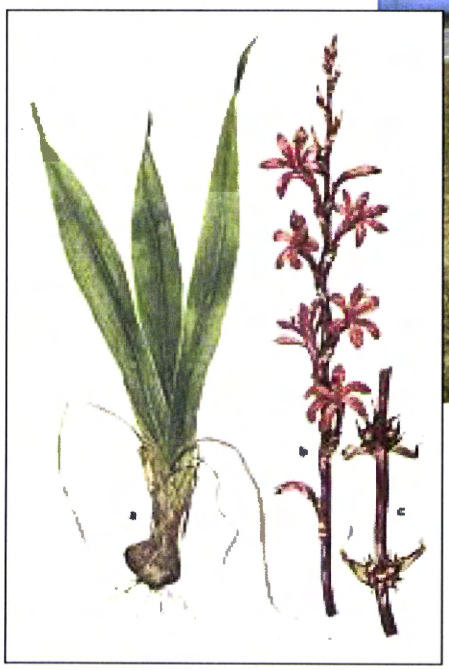
Appendix A. Photo Guide of Target Nonnative Species for Removal

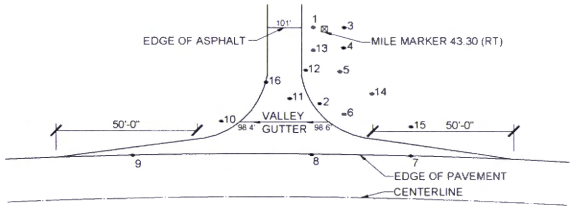


Periwinkle (*Vinca major*) usually forms a dense mat. Its shiny leaves help to identify this plant when it is not in bloom.

Himalaya Blackberry (*Rubus armeniacus*). This nonnative blackberry is easily recognized from the native California blackberry (*Rubus ursinus*) by its large, robust canes and thorns.



Bearded iris (*Watsonia bulbifera*) is recognized by its tall flowering stalks and wide leaves, which are much longer and wider than the native wild iris (*Iris douglasii*). This photo above shows the infestation of bearded iris in the wetland enhancement site.



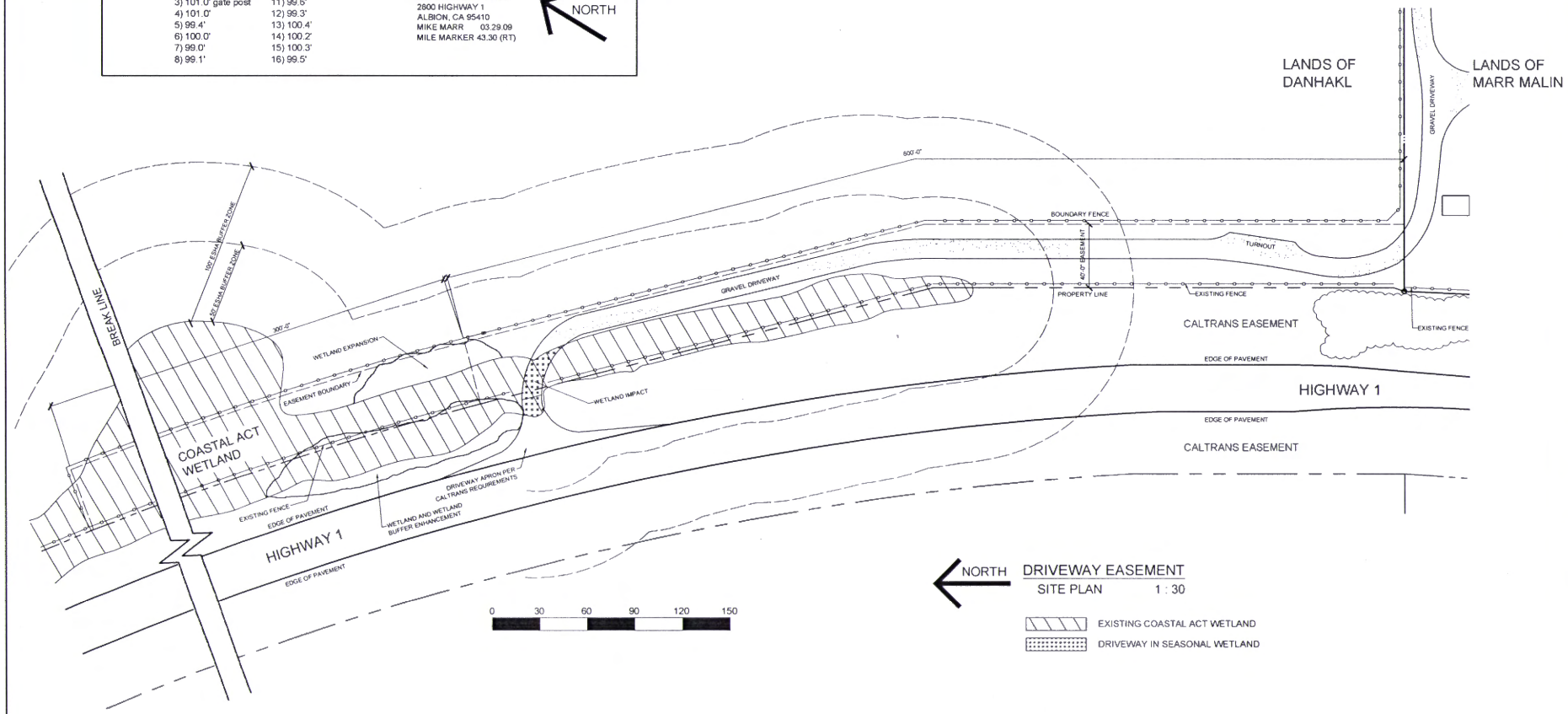
ELEVATIONS ASSOCIATED

1) 100.9' gate post	9) 98.6'
2) 100.0' control point	10) 98.4'
3) 101.0' gate post	11) 99.6'
4) 101.0'	12) 99.3'
5) 99.4'	13) 100.4'
6) 100.0'	14) 100.2'
7) 99.0'	15) 100.3'
8) 99.1'	16) 99.5'

DRIVEWAY DETAIL 1 : 20

ENCROACHMENT PLAN
2800 HIGHWAY 1
ALBION, CA 95410
MIKE MARR 03.29.09
MILE MARKER 43.30 (RT)

NORTH



NORTH

DRIVEWAY EASEMENT
SITE PLAN 1 : 30

EXISTING COASTAL ACT WETLAND
DRIVEWAY IN SEASONAL WETLAND

A NEW RESIDENCE FOR:
MICHAEL MARR AND JUDITH MALIN
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R-PRM: 08/20/10
PRM: 08/08/10
SHEET 2 OF 4