CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
NORTH COAST REGION
ORDER NO. R1-2026-XXXX

GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMMERCIAL LILY BULB OPERATIONS IN THE SMITH RIVER PLAIN

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

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The California Regional Water Quality Control Board, North Coast Region finds:

I. Findings

A. Background and Purpose

1) The purpose of Order R1-2026-00XX General Waste Discharge Requirements (WDRs) for Commercial Lily Bulb Operations, (hereinafter Order or General Order), is to provide a water quality regulatory structure to minimize discharges of waste and to prevent adverse impacts to water resources from agricultural activities associated with lily bulbs and other similar bulb crops (hereinafter Commercial Lily Bulb Operations) on private lands within the Smith River Plain Hydrologic Subarea[1] and coastal terraces between Pyramid Point and the Oregon border (hereinafter Smith River Plain). The Smith River Plain is a low gradient coastal plain of about 63 square miles located in far northwest California and is drained by the lower Smith River corridor, tributaries, estuarine sloughs, and estuary (see Figure I.1).

2) As of the 2024-2025 growing season, there are approximately 1,000 acres of land currently and recently farmed for lily bulbs in the Smith River Plain (as shown in Figure I.1) with the potential to discharge wastes to surface waters and groundwater and to affect related controllable water quality factors such as riparian shade. Cultivation of lily bulbs is typically part of a three to five-year rotation[2] with grass-clover, which is used as grazing forage and for hay crops. The fields are used as forage for livestock for two to four years and for lily bulbs for one year. Some field preparations are done in the year prior to planting bulbs. Accounting for this crop rotation, about 160 acres are planted to lilies each year, with another 160 acres in a given year are being prepared to receive the following year's plantings.

3) Commercial lily bulb farming in the Smith River Plain involves soil disturbance and use of agricultural chemicals, both of which can generate discharges of waste (e.g., sediment, nutrients, pesticides[3], and temperature). If not properly managed, these discharges can degrade water quality, cause or contribute to pollution and nuisance conditions, and adversely affect beneficial uses of waters of the state. These effects can occur through the loss of riparian shade (a controllable factor) and discharges from stormwater runoff flowing from agricultural lands, percolation, and runoff resulting from operational spills.

4) The Smith River Plain provides habitat to numerous threatened and endangered aquatic species and serves as crucial environmental trust resources for cultural, ceremonial, and subsistence beneficial uses for the Tolowa Dee-ni' Nation. A more

thorough discussion of beneficial uses of the Smith River Plain is located in Section G.1 of these Findings.

5) The State Water Resources Control Board (State Water Board) and nine regional water quality control boards (Regional Water Boards) are the principal state agencies (collectively the Water Boards) with primary responsibility for the coordination and control of water quality for the health, safety, and welfare of the people of the state pursuant to the Porter-Cologne Water Quality Control Act (Porter-Cologne Act, codified in Water Code Division 7). The legislature, in the Porter-Cologne Act, directed the state, through the Water Boards, to exercise its full power and jurisdiction to protect the quality of the waters in the state from degradation and to attain the highest water quality which is reasonable, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible, and considering precipitation, topography, population, recreation, agriculture, industry, and economic development (Wat. Code §13000).

6) Section 303(d) of the federal Clean Water Act requires that states identify water bodies that do not meet water quality standards and the pollutants that impair them. In 2018, Tillas Slough and Delilah Creek (tributaries to the Smith River estuary) were added to the 303(d) list as impaired for copper, and in 2026, Delilah Creek was added as impaired for diuron, one of the herbicides used in lily bulb cultivation.

7) On August 18, 2010, North Coast Water Board staff, in coordination with the California Department of Fish and Wildlife (CDFW), conducted a one-time surface water and sediment sampling event at Rowdy Creek and Delilah Creek in response to a complaint. Samples were collected upstream and downstream of lily bulb cultivation areas and analyzed for dissolved and total copper. Sediment toxicity tests and aquatic toxicity test were performed at the CDFW Aquatic Toxicity Laboratory. No acute toxicity to freshwater organisms was observed in any samples collected above, below, or outside the cultivation drainage areas. While there was no chronic toxicity observed in three of the four samples, the sample from the downstream Delilah Creek site showed evidence of chronic reproductive toxicity. However, this test result may have been influenced by low water hardness. The sample contained 3.99 µg/L of dissolved copper, which exceeds both the acute and chronic California Toxics Rule (CTR) criteria. Sediment samples from all sites showed no statistically significant toxicity relative to control samples.

8) The North Coast Regional Water Quality Control Board's (North Coast Water Board's) efforts to address potential impacts of lily bulb agricultural discharges in the Smith River Plain began in 2011 with a series of stakeholder meetings to inform the development of a region-wide Agricultural Lands Discharge Program. In 2013, the Board shifted to a commodity- and subregion-specific regulatory approach and directed staff to conduct water quality monitoring in the Smith River Plain to guide the next steps for regulating lily bulb agricultural discharges. A Surface Water

Ambient Monitoring Program (SWAMP) study conducted from 2013-2015 found pesticide concentrations – including copper fungicides – in surface waters that exceeded US EPA aquatic life benchmarks and other applicable water quality criteria. (Smith River Plain Surface Water and Sediment Monitoring Report 2013-2015, issued January 2018 (2018 SWAMP Report))[4].

9) In response, the North Coast Water Board directed staff to develop a targeted, collaborative water quality management strategy. The Smith River Plain Water Quality Management Plan (2021 Management Plan)[5] was developed and finalized in 2021 by a Watershed Stewardship Team composed of the lily bulb growers, regulatory agencies (e.g., NOAA Fisheries, CA Department of Fish and Wildlife, CA Department of Pesticide Regulation), local stakeholders (e.g., Del Norte Resource Conservation District, Agricultural Commissioner, the Smith River Alliance), academic partners, and the Tolowa Dee-ni' Nation. The 2021 Management Plan outlines voluntary grower participation in annual management practice reporting, North Coast Water Board inspections, ongoing surface water quality monitoring, and an adaptive management framework to guide iterative improvement based on monitoring results. The tracking and monitoring of the broad range of BMPs identified in the 2021 Management Plan has provided invaluable information in the development of this Order.

10) As part of the Adaptive Management Monitoring Program outlined in the 2021 Management Plan, a new Smith River Plain Water Quality Study was initiated in 2021 to better understand surface water quality conditions and to help inform development of the Lily Bulb Order. The Smith River Plain Surface Water Monitoring Report 2021-2024, issued September 2025 (2025 SWAMP Report)[6] found that diuron and imidacloprid were frequently detected downstream of lily bulb fields, usually below water quality criteria but sometimes exceeding them at Lower Delilah Creek and Tillas Slough during storms. That pattern was not observed in sampling locations upstream of lily bulb agriculture. Dissolved copper levels were consistently higher downstream and during the storm season, periodically reached potentially toxic levels using instantaneous water quality criteria generated from the Biotic Ligand Model (BLM). Findings from the 2025 SWAMP Report supported a series of recommendations for the Lily Bulb Order. A more detailed discussion of the 2025 SWAMP Report findings and recommendations can be found in Section I.D of the Findings.

B. Public Participation

11) Development of the Lily Bulb Order was initiated in 2023 with the formation of a Technical Advisory Group (TAG). Between July 2024 and November 2025 the TAG met every other month in Del Norte County to review provisional regulatory language and provide feedback. TAG meetings were open to the public and included agendized time for public input at every meeting. TAG membership includes all 2021 Management Plan Watershed Stewardship Team members (lily

bulb growers, regulatory agencies, local stakeholders, academic partners, and the Tolowa Dee-ni' Nation), with additional environmental nonprofit groups, partnering agencies, community organizations, and interested members of the public.

12) In addition to 7 public TAG meetings, staff presented information at three additional public meetings in Del Norte County to inform the community on the Lily Bulb Order and hear community concerns. On October 21, 2024, staff presented an Order development update and heard public input at a community meeting in Smith River, California, which was attended by over 80 people. On October 22, 2024, staff presented similar information to the Del Norte County Board of Supervisors at a regular Board of Supervisors meeting. Staff also presented similar information at the CEQA Scoping Meeting in Crescent City on October 22, 2024.

13) Many community concerns raised during 10 public meetings held between July 2024 and October 2025 extended beyond the regulatory authority of the North Coast Water Board. Accordingly, staff referred those concerns—such as pesticide application practices and air quality—to the appropriate CalEPA agencies, including the Office of Environmental Health Hazard Assessment and the California Department of Pesticide Regulation. Through a Management Agency Agreement established in 2019, the North Coast Water Board has also drawn on the CA Department of Pesticide Regulation's expertise to help develop science-based recommendations for the Lily Bulb Order. In parallel, staff have coordinated with NOAA Fisheries, the CA Department of Fish and Wildlife, the CA Coastal Commission, and the US Fish and Wildlife Service through a natural resource agency workgroup to address technical questions related to Order development.

14) On October 10, 2024, the North Coast Water Board published a Notice of Preparation and an Initial Study to begin soliciting input related to environmental review for the California Environmental Quality Act (CEQA), in preparation for developing a draft Environmental Impact Report (EIR). A 30-day public comment period was held for the Notice of Preparation and Initial Study. On October 22, 2024**,** North Coast Water Board staff held a public CEQA scoping meeting in person and virtually. Input received during the public comment period and public scoping meetings has been considered in the development of the draft EIR.

15) On October 8, 2025 the North Coast Water Board held an information item in Crescent City to present findings from the 2025 SWAMP Report[7] (Smith River Plain Surface Water Monitoring Study 2021-2024) and provide an update on development of the Lily Bulb Order. Following the staff presentation, the Board heard public comment. Flyers for this meeting were developed in English, Spanish, and Hmong and distributed throughout the community. Live interpretation in Spanish was available.

16) On **##DATE##**, the North Coast Water Board published the draft Order and draft EIR and began a 45-day public comment period.

17) The North Coast Water Board, in a public hearing held on **###DATE###**, has heard and considered all comments pertaining to the discharge and proposed Order. After considering all comments pertaining to this General Order during the **###MONTH###** public hearing, this Order was found consistent with the findings in Section I of this Order.

18) Any person aggrieved by this action of the North Coast Water Board may petition the State Water Board to review the action in accordance with California Water Code section 13320 and title 23 California Code of Regulations sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., within 30 calendar days of the date of adoption of this Order at the following address, except if the thirtieth day following the date of adoption falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100
Or by email at waterqualitypetitions@waterboards.ca.gov

For instructions on how to file a petition, see (http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml)

1. Assembly Bill 2108

19) Assembly Bill 2108 (Statutes of 2022, Chapter 347) requires State and North Coast Water Boards to address issues of environmental justice and social equity as early as possible in North Coast Water Board permit and policy planning processes. AB 2108 specifies that North Coast Water Boards engage in equitable, culturally relevant community outreach to meaningfully involve disadvantaged and tribal communities that may be disproportionately impacted by proposed discharges of waste and ensure that outreach and engagement shall continue throughout the review and permitting processes. (Wat. Code, § 189.7, subd. (a).)

20) AB 2108 further requires the Water Boards when, among other actions, adopting general waste discharge requirements to make findings on anticipated water quality impacts in disadvantaged or tribal communities as a result of a permitted activity or facility, any environmental justice concerns within the Water Boards' authority that are raised regarding those water quality impacts, and available measures within the Boards' authority to address those water quality impacts. (Wat. Code, § 13149.2.)

21) This Order regulates commercial cultivation of lily bulbs, discharges from which may impact disadvantaged and/or tribal communities.

22) The North Coast Water Board publicly noticed the Order and provided opportunities for public comment. Public notice was provided to interested persons and public agencies in the Smith River Plain. The North Coast Water Board conducted outreach in potentially affected disadvantaged and tribal communities in the form of distributed flyers in English, Spanish, and Hmong, meetings with community organizing groups such as True North Organizing, and regular meetings with the natural resources staff of the Tolowa Dee-Ni' Nation.

23) The North Coast Water Board has satisfied the outreach requirements set forth in Water Code section 189.7 by conducting outreach in affected disadvantaged and tribal communities.

24) Pursuant to Water Code section 13149.2, the North Coast Water Board reviewed readily available information and information raised to the Board by interested persons concerning anticipated water quality impacts in disadvantaged or tribal communities resulting from adoption of this Order. The Board also considered environmental justice concerns within the Board's authority and raised by interested persons regarding those impacts.

25) This Board anticipates that this Order may result in water quality impacts within the scope of the Board's authority. Commercial lily bulb farming in the Smith River Plain has the potential to affect water quality through soil disturbance and use of agricultural chemicals. This Order addresses potential adverse impacts to water quality by, among other things, requiring Enrollees to implement management practices related to sediment and erosion control to prevent, minimize, or eliminate discharges; implement streamside area setbacks; monitor surface and groundwater quality to evaluate the effectiveness of management practices; and, where appropriate, engage in an adaptive management process to comply with water quality objectives (WQOs).

2. Assembly Bill 52

26) Assembly Bill 52 (Statutes of 2014, Chapter 532), which went into effect on July 1, 2015, requires that lead agencies under CEQA, prior to release of a negative declaration, mitigated negative declaration, or environmental impact report, consult with California Native American tribes that have requested in writing to be notified of a proposed project, that are traditionally and culturally affiliated with the geographic area of a proposed project, and have requested consultation. Under the same bill, Public Resources Code section 21084.2 specifies that a project with an effect that may cause a substantial adverse change in the significance of a Tribal Cultural Resource is a project that may have a significant effect on the environment.

27) In April 2024, North Coast Water Board staff contacted six Tribes that were identified by the California Native American Heritage Commission as having current

or historic lands in or near the Project Area that had requested notification of this project under AB 52. The North Coast Water Board staff identified an additional two Tribes that had not requested AB 52 notification but could be affected by the Order to solicit consultation if desired.

28) Of the eight Tribes notified by the North Coast Water Board, three separate tribes responded to the notice. One tribe updated their contact information and a separate Tribe deferred to the Tolowa Dee-Ni' Nation. The Tolowa Dee-Ni' Nation requested formal consultation in May 2024.

29) The North Coast Water Board and the Tolowa Dee-Ni' Nation initiated formal consultation in mid-2024.

C. Scope of Order

30) This Order regulates discharges of waste from farming activities associated with Commercial Lily Bulb Operations within the Smith River Plain Hydrologic Subarea coastal terraces between Pyramid Point and the Oregon border (Smith River Plain).

31) Definitions and endnotes are included in this Order to clarify terms, provide references, and supply supplemental information relevant to the requirements. Appendix I contains all acronyms, definitions, and endnotes.

32) For the purposes of this Order, a Commercial Lily Bulb Operation refers to land used for planting lily bulbs during any portion of the previous 5 years together with associated farm roads and agricultural structures, where at least one of the following conditions applies: (1) the landowner or operator holds a current Operator Identification Number/Permit Number for pesticide use reporting; (2) the crop and/or its product is sold; or (3) the federal Department of Treasury Internal Revenue Service form 1040 Schedule F Profit or Loss from Farming is used to file federal taxes.

33) Discharges from Commercial Lily Bulb Operations regulated by this Order include discharges to surface water and groundwater, through mechanisms such as stormwater runoff flowing from agricultural lands and farm roads, irrigation return flows, tailwater, and runoff resulting from operational spills. These discharges can contain wastes that could affect the quality of waters of the state and impair beneficial uses. This Order also regulates the removal or degradation of riparian vegetation resulting in the potential loss or degradation of instream beneficial uses.

34) This Order does not limit North Coast Water Board authority to inspect, and/or evaluate regulatory status, water quality impacts, or regulatory requirements of Commercial Lily Bulb Operations. If the North Coast Water Board determines that due to site-specific conditions a Commercial Lily Bulb Operation is not eligible for

coverage under this General Order, or enrollment will not be protective of water quality, the North Coast Water Board may issue site-specific, individual WDRs.

35) This Order applies to landowners and operators of Commercial Lily Bulb Operations from which there could be discharges of waste or activities that could affect the quality of any surface water or groundwater or result in the impairment of beneficial uses. Either the owner or operator may enroll a Commercial Lily Bulb Operation under this Order. The owners or operators that enroll the respective Commercial Lily Bulb Operation are considered Enrollees under this Order and are responsible for complying with the conditions of this Order.

36) The Enrollee is required to provide written notice to the non-Enrollee owner or operator (if applicable) that the farm has been enrolled under the Order.

37) The North Coast Water Board will hold both landowners and operators of Commercial Lily Bulb Operations liable for noncompliance with this Order, regardless of whether the landowner or the operator is the party enrolled under this Order. Enforcement action by the North Coast Water Board for non-compliance related to an enrolled Commercial Lily Bulb Operation may be taken against both the owner and operator.

38) This Order does not preclude the need for additional permits that may be required by other governmental agencies, nor does it supersede any requirements, ordinances, or regulations of any other regulatory agency. This Order does not authorize violation of any federal, state, or local law or regulation.

39) This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code §§2050 to 2097) or the Federal Endangered Species Act (16 US Code §§1531 to 1544). If a "take"[8] will result from any action authorized under this Order, the Grower shall obtain authorization for an incidental take prior to construction or operation of the project. The Enrollee shall be responsible for meeting all requirements of the applicable Endangered Species Act.

40) This Order does not exempt Enrollees from complying with the lawful requirements of municipalities, counties, drainage districts, and other local agencies regarding discharges to storm drain systems or other infrastructure under their jurisdiction.

41) Enrollees may be required to seek additional permitting from the State Water Resources Control Board or North Coast Water Board for activities not explicitly covered under this Order. Those could include, but are not limited to:

    a) State Water Board Construction General Permit for Discharges of Storm Water Associated with Construction Activities (Construction General Permit,

2009-0009-DWQ) for construction activities associated with new land development.

b) Order No. R1-2019-0001, General WDRs for Dairies

c) State Water Board Order No. WQ 2020-0012-DWQ, General WDRs for Commercial Composting Operations.

d) Clean Water Act section 401 water quality certification or alternative WDRs for dredge and fill activities occurring within surface waters.

e) A valid water right from the State Water Board Division of Water Rights for a surface water diversion.

42) The North Coast Water Board acknowledges that it will take time to: (1) develop meaningful and effective Third-Party programs that facilitate compliance with this Order; (2) develop online reporting tools and templates, and (3) conduct compliance education to help Enrollees and service providers become familiar with Order requirements. The Order considers this by deferring the enrollment deadline to **DATE##** adoption plus 6 months.

D. Agricultural Practices and Pesticide Use

43) The California Department of Pesticide Regulation (CDPR) maintains pesticide applicator data that is submitted by Enrollees through the Del Norte County Department of Agriculture. The North Coast Water Board analyzed CDPR Pesticide Use Report (PUR) data collected between 2012-2021 for trends in pesticide use associated with lily bulb production in the Smith River Plain. The PUR data showed a decrease from an average of 14,126 lbs. of applied copper[9] per year between 2012-2017 to an average of 5,842 lbs. per year between 2018-2021. The PUR data also indicated a phase out of copper sulfate in favor of copper hydroxide from 2015-2018. From 2018 through 2021, the amount of total copper applied per year has been relatively stable, if slightly increasing. See Table I.1 for pesticide use data for lily bulbs in the Smith River Plain.

Table I.1: Top Ten Agricultural Chemicals by Pounds Applied on Lily Bulbs 2012-2021

Chemical (excluding Copper)	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Grand Total
1,3-DICHLORO PROPENE	114,325	122,499	75,474	79,929	106,794	98,497	86,742	105,117	184,217	133,087	1,106,679
METAM-SODIUM	129,373	120,283	117,649	102,882	35,719	95,393	75,993	86,461	66,357	55,719	885,829
CHLOROTHALONIL	3,424	5,318	2,454	4,654	3,997	2,845	3,650	3,174	3,061	1,970	34,547
PHORATE	1,964	1,787	1,992	1,876	2,003	1,874	1,702	1,442	1,340	1,185	17,166
ETHOPROP	1,531	1,141	2,160	1,047	1,298	1,309	1,226	1,264	1,007	905	12,887
DIURON	1,172	1,534	744	1,135	803	1,002	1,252	1,494	1,359	1,268	11,765
GLYPHOSPHATE, SUM	584	1,093	397	1,038	474	698	886	676	410	860	7,116
NAPROPAMIDE	2,412	439	436	445	190	504	314	763	387	400	6,289
IPRODIONE	214	57	23	28	828	481	326	376	563	214	3,110
Copper-Based Chemicals	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**Grand Total**
COPPER HYDROXIDE	27,711	24,251	12,953	20,163	10,610	9,904	5,973	9,233	10,090	7,129	138,016
COPPER SULFATE	5,029	23,030	11,992	7,287	30	2,297	-	-	36	-	49,701
COPPER OXYCHLORIDE	-	-	-	-	276	198	288	604	414	298	2,077
COPPER DDC	852	832	369	1,705	5,075	1,569	1,502	617	2,129	117	14,767

44) Copper is the active ingredient in fungicides applied to control fungal diseases (e.g., Botrytis) on newly emergent and growing lily bulb plants. Lily bulb plants emerge from the ground during the early winter and are sprayed with copper-based fungicides during both the wet and dry seasons as new growth appears on plants. The discharge of copper based products applied on lily bulbs are of particular concern because low levels of dissolved copper can cause toxicity to aquatic life.

45) In 2024, Dr. Matthew Hurst, Logan Wolfe, and Preston Selby from California State Polytechnic University, Humboldt released findings from a study[10] which investigated the effectiveness of vegetative barriers in reducing copper and sediment in stormwater runoff from lily bulb fields in the Smith River Plain. The research aimed to support lily bulb growers in implementing best management practices to protect water quality, particularly to safeguard the federally threatened Coho salmon inhabiting the Smith River watershed. Over two years, the study

sampled stormwater runoff from lily bulb fields with vegetative filter strips installed between the field and an agricultural ditch where the samples were taken. The study compared fields with filters strip to fields without a filter strip with all other management methods kept the same among the fields. The study found that grass filter strips reduced total suspended solids and total copper in runoff by about 20%, on average with a standard deviation of +/-20%. The filter strips were ineffective at reducing dissolved copper in field runoff, which is the more toxic form to aquatic life. The effectiveness of filter strips in the study diminished during December and January when soils were saturated. The study also found that copper primarily leaves fields bound to sediment particles (particulate copper), and that dissolved organic carbon (DOC) in runoff can decrease the bioavailability of copper and the associated risk of toxicity to aquatic life. The study found that conversion of lily bulb fields to pasture significantly reduced copper transport to waterways. The results of the study, in general, highlight the need for further research on effective mitigation strategies to improve water quality runoff, such as inter-row seeding, grassed waterways, or more robust filter strips.

46) The scientific literature consistently identifies vegetated buffer width between watercourses and agriculture as a key determinant of pollutant reduction, with wider vegetated buffers providing greater and more reliable water-quality benefits. Reviews commonly cite effective buffer widths in the range of 10–30 m (approximately 33–100 ft)[11], particularly because wider buffers enhance removal of dissolved pollutants while also trapping sediment-bound contaminants. Cole et al. (2020)[12] report that narrower buffers of approximately 7.5 m (~25 ft) are effective at reducing sediment and sediment-associated pollutants, whereas wider buffers of 15 m (~50 ft) or greater are more effective for reducing soluble pollutants, with performance influenced by soils, slope, and hydrology.

47) Under the 2021 Management Plan, all lily bulb growers agreed to voluntarily implement a suite of water quality management practices designed to reduce pesticide and nutrient runoff, erosion, and direct discharge of pollutants to surface waters. These practices fall into three general categories: source reduction, source control, and pollutant interception. Source reduction includes Integrated Pest Management (IPM) plans, selection of low-risk pesticides, pesticide sampling and analysis, pesticide mixing/loading setbacks, and timing applications considering weather forecasts to minimize runoff potential. Source control practices include soil amendments to bind pesticides, use of cover crops, contour farming, precision land forming to improve drainage, and maintenance of vegetated filter strips and riparian buffers. Pollutant interception involves practices such as field isolation—directing runoff onto pastures or filter strips—and installation of flow dissipaters and grade stabilization structures to reduce erosion.

48) Under the 2021 Management Plan, growers self-monitor and report on the implementation and effectiveness of these practices through an annual reporting program. North Coast Water Board staff conduct periodic on-farm inspections and

review grower documentation to verify compliance and provide feedback.

E. Monitoring and Reporting

49) This Order requires the implementation of a Monitoring and Reporting Program (MRP) pursuant to Water Code section 13267 that is intended to determine the effects of waste discharges on water quality; to verify the adequacy and effectiveness of the Order's conditions; to evaluate Enrollee compliance with the terms and conditions of the Order; to initiate adaptive management as needed; and to support an assessment of the long-term effectiveness of the Order.

50) This Monitoring and Reporting Program conforms to the goals of the Nonpoint Source (NPS) Policy as outlined in The Plan for California's Nonpoint Source Pollution Program by: (1) tracking, monitoring, assessing, and reporting program activities; (2) ensuring consistent and accurate reporting of monitoring activities; (3) targeting NPS Program activities at the tributary watershed level; (4) coordinating with public and private partners; and (5) tracking implementation of management practices to improve water quality and protect beneficial uses.

51) An Enrollee covered under this Order must comply with Attachment A: Monitoring and Reporting Program. For Individual Enrollees, water quality monitoring under this Order assesses the individual's compliance with this Order's requirements. For Enrollees in a Coalition, water quality monitoring assesses compliance at a larger scale. However, adaptive management in response to exceedances of Water Quality Benchmarks[13] is required individually by each Enrollee.

52) The monitoring and evaluation required in this Order is not intended to determine the individual sources of pollutants causing an exceedance of a Water Quality Benchmark. When an exceedance occurs, this Order requires Enrollees to implement adaptive management to establish individual compliance with the Order as described in Section II.H. As necessary, the Executive Officer may issue site-specific monitoring and reporting requirements pursuant to Water Code section 13267 to better identify the source(s) of a Water Quality Benchmark exceedance. Additionally, Enrollees may elect to perform site-specific edge-of-field monitoring to demonstrate individual compliance. If monitoring results show there are no exceedances of a Water Quality Benchmark, the applicable fields are not required to implement adaptive management requirements to establish individual compliance.

Pesticides in Surface Water

53) Between August 2013 and June 2015, the North Coast Water Board's Surface Water Ambient Monitoring Program (SWAMP) sampled surface water and sediment in the Smith River Plain for standard water quality parameters, nutrients, pesticides, dissolved copper and zinc, and toxicity to assess impacts from

Commercial Lily Bulb Operations[14]. Sampling stations were located upstream and downstream of agricultural operations. A total of 17 pesticides (including isomers and degradants) were detected in downstream monitoring stations in the Smith River Plain. Pesticide concentrations from the surface water samples from this study exceeded water quality thresholds at two of the five downstream monitoring sites. In March 2015 diuron exceeded USEPA Office of Pesticide Programs (OPP) Freshwater Aquatic Life Benchmarks for Pesticide Registration in Delilah Creek[15]. Imidacloprid and permethrin were also detected in concentrations exceeding the USEPA's Office of Pesticide Programs Aquatic Life Benchmarks[16] in a sample that had a positive toxicity test result[17]. Additionally, dissolved copper was detected in every surface water sample with 6 of 27 sample results exceeding the California Toxics Rule (CTR) Freshwater Aquatic Life Criteria for dissolved copper concentrations[18]. The results of this study demonstrate that agricultural pesticide active ingredients are present in surface waters of the Smith River Plain.

Toxicity testing documenting the survival (acute toxicity) and reproductive capacity (chronic toxicity) of the test species *Ceriodaphnia dubia* in surface water samples was performed on samples collected from six locations in the Smith River Plain from 2013-2015. In 10 of 25 samples, these tests demonstrated statistically significant reductions in reproductivity (positive for chronic toxicity), including three tests in which the "control" location upstream of lily bulb agriculture (Upper Rowdy Creek) was positive for chronic toxicity. In another 2 samples, a positive acute toxic response was documented, with 1 of the samples demonstrating no test species survival.

To determine the cause of the 2015 observed acute toxic response, three samples that exhibited chronic or acute toxicity were further tested utilizing a toxic identification evaluation (TIE). The TIEs uncovered a confounding result in the toxicity test results. The prevalence of positive chronic toxicity results (10 of 25) in samples collected throughout the study area (except Tillas Slough, which has higher conductivity) including the control site, suggests that the extremely low water hardness and conductivity in the tributaries are interfering with the ability of the test species to reproduce, producing false positives, or toxic responses when toxic conditions do not exist. For example, TIE evaluations of the reduced reproduction observed in upper Rowdy Creek and lower Delilah Creek on June 23, 2015, pointed to low conductivity and low hardness as a contributor of toxicity with no suggestion of other toxicants.

Low conductivity and low hardness water such as that in the tributaries of the Smith River Plain can negatively affect the reproduction rates of *C. dubia* in the testing environment. When the test species are reared in water with conductivity and hardness levels that are greater than the sample water, their reproductive rates can be adversely affected. Toxicity testing procedures for evaluating the toxicity of surface water must take into consideration the conductivity and hardness of the source water and its effect on the test species.

A TIE was conducted as a follow up to positive acute toxicity results in the March 11, 2015 sample from lower Delilah Creek. The TIE identified the presence of both a metal and a non-polar organic compound (pesticide) as the drivers behind the acute toxic response in which there was no test species survival. Chemical analysis of the surface water sample associated with the acute toxic response in 2015 documented that two current use pesticides, imidacloprid and permethrin, were detected in concentrations exceeding the USEPA's Office of Pesticide Programs Aquatic Life Benchmarks and that dissolved copper concentrations exceeded the CTR Freshwater Aquatic Life Criteria for acute toxicity.

54) In 2022, Dr. Matthew Hurst and colleagues from the Chemistry and Geology Departments at Cal Poly Humboldt released findings from a study[19] that investigated the bioavailability and speciation of copper in the Smith River Plain. The research aimed to assess copper levels in waterways affected by agricultural runoff from the Easter lily bulb industry and their potential impact on juvenile Coho salmon, a federally threatened species reliant on these habitats. The study found that copper concentrations were elevated downstream of agricultural fields compared to upstream and background levels in the Smith River, indicating that current lily bulb cultivation practices increase copper in tributaries. Physical speciation revealed a significant portion of copper in particulate form, especially in Delilah Creek, likely due to sediment runoff. Importantly, bioavailability measurements showed that the toxic form of copper (Cu^{2+}) remained well below thresholds known to impair salmon olfactory function and behavior, primarily because dissolved organic carbon (DOC) and other ligands in the water bind copper and reduce its bioavailability. The study also found high dissolved copper concentrations were usually accompanied with high DOC concentrations, which would work to reduce the bioavailability of copper and reduce its toxicity. However, low DOC levels during dry seasons may reduce this buffering capacity, potentially increasing copper toxicity risk.

55) Dissolved copper can have an acutely toxic effect to fish through exposure of the gill. Even at low levels, dissolved copper can inhibit or destroy neuron (nerve) cells and impair two important sensory and behavioral response systems: olfaction (sense of smell)[20] and the lateral line[21]. Fish use their sense of smell to identify predators and prey, assess potential mates, avoid pollutants, detect migratory cues, and navigate to their natal streams from the ocean. The lateral line is the visible line along the side of a fish consisting of a series of sense organs, which fish use to detect movement, pressure, and vibration in the surrounding water. When these senses are impaired, fish growth suffers and may lead to mortality. Water chemistry can affect the toxicity of copper when metal ions (e.g., Ca2+) compete with copper for binding sites on gills and other cells, or when other inorganic and organic constituents bind to copper ions reducing their bioavailability. The toxicity of copper is closely related to water hardness, alkalinity, pH and dissolved organic carbon (DOC) in the water. Water hardness refers to the presence of dissolved

metal ions such as calcium and magnesium. Hardness in the Smith River is generally quite low, based on samples taken by the North Coast Water Board. Low hardness increases the bioavailability of copper and copper toxicity to aquatic life because there are fewer calcium and magnesium ions to compete with copper for binding sites on the gills and other biological surfaces, allowing more free copper ions to be absorbed by aquatic organisms.

56) As part of the Smith River Plain Water Quality Management Plan, North Coast Water Board staff in the Surface Water Ambient Monitoring Program (SWAMP) sampled surface water between 2021-2024. Analytes were selected based on their known use in lily bulb production, toxicity profiles, prior study results[22], and input data needs for the US EPA endorsed Biotic Ligand Model (BLM) – a metal bioavailability model that uses receiving water body characteristics and monitoring data to develop site-specific water quality criteria. Synthetic pesticide chemicals (diuron, ethoprop, and imidacloprid) were detected at all downstream monitoring stations with only Lower Delilah Creek (8 exceedances) and Tillas Slough (2 exceedances) recording water quality criteria exceedances (See Figure A.1 for monitoring station locations).

The pattern of synthetic pesticide concentrations seems to align with typical environmental fate and transport. Diuron and imidacloprid concentrations downstream of lily bulb fields rise sharply during major storm events (typically October–May), peaking early in overland flow before diluting as streamflow increases. Following storms, moderate levels likely persist due to continued shallow groundwater discharge, with low detections year-round indicating ongoing baseflow transport. Imidacloprid exceedances align with imidacloprid application rates, and both pesticides show strong correlations with large storm events.

Potential copper toxicity (toxicity unit >1) was predicted by the BLM at all downstream stations at least once and in approximately 40 percent of samples, with predictions of chronic toxicity twice as common as acute. The BLM predicted a risk of toxicity most frequently in samples collected from Lower Delilah Creek (54% of samples) and Tillas Slough (33% of samples during freshwater conditions). The model results were driven by elevated dissolved copper and depressed pH, and the highest risk of toxicity predicted by the BLM was in samples collected during the storm season. Predicted chronic toxicity closely tracked normalized copper application rates[23], with Delilah Creek exhibiting both the highest copper use and the most frequent toxicity predictions.

57) On September 26, 2024, as part of the 2021-2024 SWAMP study, Regional Board staff sampled two locations north of the Smith River Plain on the coastal terrace near Highway 101 at locations that receive runoff from lily bulb fields. One set of samples was collected in Gilbert Creek at Highway 101 and another set was collected in a small coastal drainage that runs to the ocean at Clifford Kamph Memorial Park. While these locations are outside of the Smith River Plain proper,

they are both within the Smith River Plain hydrologic subarea and therefore within the scope of this Order. Gilbert Creek runs east to west to the north of this small lily bulb growing area, while the other drainage is to the south and receives most of the surface runoff. There are about six fields that are used for lily bulb cultivation in this area and at the time of the sampling event in September 2024, four of those fields were planted to lilies.

Both sets of samples were analyzed for the same set of parameters as the rest of the samples collected as part of the SWAMP study. The analysis included the suite of select current use pesticides, general field parameters, dissolved copper, and a complete set of BLM input parameters. At the time of sampling, flow in Gilbert Creek was estimated between 1-5 cubic feet per second (cfs) and flow in the coastal drainage at Clifford Kamph Memorial Park was estimated between 0.1-1 cfs. There was no precipitation in the preceding 24 hours. Only one pesticide, diuron, was detected out of all the pesticide sample results at a concentration of 0.054 ug/L at the Clifford Kamph Memorial Park site. This concentration is well below the chronic Water Quality Benchmark of 0.83 ug/L for diuron. Dissolved copper was measured at 0.44 ug/L at the Gilbert Creek location and at 1.47 ug/L at the Clifford Kamph Memorial Park location. The results for dissolved copper and the BLM parameters were input into the BLM model to generate acute and chronic instantaneous water quality criteria to compare to the dissolved copper results. Both sample results for dissolved copper were below the BLM generated chronic criteria of 1.94 ug/L (Gilbert Creek) and 5.14 ug/L (Clifford Kamph Memorial Park).

58) In addition to presenting monitoring data, the 2025 SWAMP Report includes analyses conducted by North Coast Water Board staff to assess pesticide toxicity risk relative to pesticide application rates/timing and precipitation patterns. Staff's analysis of water quality data from the 2025 SWAMP Report suggests a strong association between both rate of pesticide application and occurrence of major storm events with predicted bioavailability of dissolved copper and synthetic pesticide exceedances of water quality criteria.

59) Based on these findings from the 2025 SWAMP Report, North Coast Water Board staff recommends reducing diuron, imidacloprid, and copper application rates in watersheds with exceedances of water quality criteria and predicted copper toxicity; identifying and implementing management practices that reduce synthetic pesticide and copper transport (e.g., increasing soil organic carbon content); and investigating mechanisms that contribute to depressed pH in receiving waters near lily bulb cultivation areas. Staff recommended that surface water monitoring should remain focused on storm-season sampling, with emphasis on capturing both initial overland flow and post-storm baseflow periods, particularly in tributaries with elevated application rates and exceedances of relevant water quality criteria. These recommendations were incorporated into the Surface Water Monitoring Program in the Monitoring and Reporting Program.

60) This Order requires surface water monitoring for diuron, imidacloprid, ethoprop, and dissolved copper, as specified in Attachment A: Monitoring and Reporting Program (MRP). Except for diuron, the Water Quality Benchmarks used to drive adaptive management and measure compliance with surface water Receiving Water Limitations in this Order are consistent with the values applied in analyzing dataset presented in the 2025 SWAMP Report[24]. A detailed discussion of these Water Quality Benchmarks, including the use of the Biotic Ligand Model (BLM) for dissolved copper, is provided in Section G.1 of these Findings.

Nutrients in Surface Water

61) The North Coast Water Board's SWAMP Program implemented monitoring in the Smith River Plain in 2013 and 2015 to evaluate water and sediment quality conditions, which included analysis of samples for nutrients. The results for nutrients were compared to USEPA guidance criteria. The nutrient criteria guidance is grouped by 'ecoregions' for the entire country that states may use as a starting point for the criteria for their water quality standards. The criteria are called Ecoregional Nutrient Criteria for Rivers and Streams. Ecoregion II includes most of the great mountain ranges that are located west of the Great Plains. This large, disjunct region is characterized by forests, high relief terrain, steep slopes, perennial streams, and a general lack of cropland agriculture. While the Smith River Plain is included in this ecoregion, it does not match the characteristics of the ecoregion in general. However, water quality results from 2013-2015 were compared to these guidance criteria as a benchmark to provide some context. The comparison showed that nitrogen levels exceeded the ecoregional nutrient criteria in every sample collected in Delilah and Morrison Creeks and Tillas Slough. Phosphorus exceeded the criteria in one instance in Delilah Creek and in three of six samples in Tillas Slough.

62) According to a response to a 2018 Water Code Section 13267 Order, lily bulb growers indicated that nitrogen is applied at planting, during the spring, and through the manure of grazing cattle. This Order monitors the potential for discharge of nitrogen to surface water primarily through Irrigation and Nitrogen Management Plans (INMPs) which require Enrollees to (1) report nitrogen application and crop removal rates; (2) sample soil and irrigation water for nitrate concentrations; and (3) identify management practices to minimize or prevent discharge of excess nitrogen to surface or groundwater. This Order requires certification of the INMP and adaptive management for Enrollees who over-apply nitrogen as defined by exceeding a target calculated ratio of nitrogen applied to nitrogen removed. Section I of this Order defines the adaptive management triggers for the potential over-application of nitrogen.

63) Phosphorus is used as a fertilizer in Commercial Lily Bulb Operations. Phosphates sorb to positively charged surfaces in soil so controlling and monitoring for the

discharge of phosphorus in this Order is achieved through sediment and erosion management practices and monitoring.

Pesticides in Groundwater

64) CDPR maintains a Groundwater Protection List in sections 13144, 13145, and 13149 of the California Food and Agricultural Code. Pesticides labeled for agricultural, outdoor institutional or outdoor industrial use that are designated as having the potential to pollute groundwater and have been detected in groundwater or soil pursuant to section 13149 of the Food and Agricultural Code are on the CDPR 6800(a) list.

65) The CDPR Human Health Assessment Branch (HHAB) has developed Human Health Reference Levels (HHRLs) for pesticides on the 6800(a) list. Residues measured in groundwater exceeding these reference levels indicate a health concern and should be sent to HHA for further evaluation.

66) The CDPR Groundwater Protection Program (GWPP) obtains groundwater monitoring data for pesticides and their degradates through its own sampling program and from sampling conducted by other public agencies. Between 2012 and 2021, the GWPP has reported one unconfirmed detection of a 6800(a) listed pesticide (Simazine) on the Smith River Plain. However, Simazine use was not reported in CDPRs Pesticide Use Report data in the previous five years.

67) The North Coast Water Board released a report in 2015 for the Smith River Plain which included groundwater monitoring results from seven sites to evaluate the extent and concentration of contaminants in shallow groundwater that may be attributed to agricultural applications. These samples were analyzed for dissolved copper, and 328 pesticides and pesticide residues. Among the 328 pesticides analyzed are those that were previously detected in groundwater (e.g., 1,2-Dichloropropene), those identified as pesticides of concern (e.g., Methyl Isothiocyanate, which is a break down product of metam sodium), and those commonly used in high quantities in Del Norte County between 2010 and 2013 (e.g., 1,3-Dichloropropene). The analysis of dissolved copper resulted in one detection of dissolved copper (5.7 ug/L) which was well below the US Environmental Protection Agency's and California Department of Public Health's drinking water standard (1,300/1,000 µg/L, respectively). Analysis for the 328 pesticides and pesticide residues only documented two detections of 1,2-Dichloropropane (1,2-D) which was below the US Environmental Protection Agency's and California Department of Public Health's drinking water standard of 5 µg/L. See page 10 of the Smith River Plain 2015 Groundwater Interim Monitoring Report for tabulated results[25].

68) In April 2025, North Coast Water Board staff sampled 9 private domestic wells within the current and historic lily bulb cultivation area in the Smith River Plain.

Drinking water samples were analyzed for 94 pesticide residues utilizing a domestic well sampling program offered by the CA Department of Pesticide Regulation. North Coast Water Board staff worked with the lily bulb growers, the Technical Advisory Group for the Lily Bulb Order development, and local community groups to identify volunteers for domestic well sampling. Pesticides were detected in 6 of the 9 domestic wells sampled. Of the eight pesticides detected, all but one – used in forestry and highway rights-of-way – had been applied on lily bulbs between 2012 and 2023. The pesticides detected include diuron, imidacloprid, mefenoxam, napropamide, thiamethoxam, ACET, simazine, and tebuthiuron. Four pesticides (diuron, imidacloprid, napropamide, and mefenoxam) were reported as being used on lily bulbs in the most recent Pesticide Use Reports from 2023. Three quarters of all pesticide detections (75%) were reported at trace concentrations[26] and none exceeded established human health levels[27].

69) This Order requires monitoring of pesticides in groundwater through: (1) individual and regional groundwater trend monitoring to evaluate agricultural impacts on groundwater; (2) adaptive management in response to exceedances of pesticide Water Quality Benchmarks in groundwater; and (3) drinking water well sampling to notify well users of exceedances of a human health level with respect to pesticides. Pesticides included in groundwater monitoring in this Order were all current-use lily bulb pesticides that were detected during the April 2025 domestic well sampling effort (diuron, imidacloprid, napropropamide, and mefenoxam). These requirements are located within Attachment A: Monitoring and Reporting Program.

Nitrate in Groundwater

70) Elevated levels of nitrate in drinking water can have significant negative health effects on sensitive individuals. The nitrate water quality objective for groundwater is the maximum contaminant level (MCL) of 10 mg/L (milligrams per liter) for nitrate plus nitrite as nitrogen (or 45 mg/L of nitrate as nitrate) established by the California Department of Public Health (Cal. Code Regs. tit. 22, § 64431). The MCL was set to protect the most at-risk groups – infants under six months old and pregnant women. Sources of nitrate in groundwater can include leaching of excess fertilizer, confined animal feeding operations, septic systems, and wastewater discharge to land (e.g., domestic, commercial, and industrial). Besides infiltration, pathways of nitrate to groundwater may also include unprotected well heads, improperly abandoned wells, and lack of backflow prevention on wells.

71) The North Coast Water Board released a 2015 Groundwater Monitoring Report for the Smith River Plain which included monitoring results from seven sites within the lily bulb growing area to evaluate the extent and concentration of contaminants in shallow groundwater that may be attributed to agricultural applications. Samples collected in a one-time sampling event from the seven wells were analyzed for nitrate (as nitrogen). Nitrate concentrations in the groundwater ranged from 4.8

mg/L to 12.7 mg/L across all wells tested. Three irrigation wells exceeded the California Department of Public Health MCL of 10 mg/L for nitrate. Nitrate concentrations in the three Drinking Water Supply Wells ranged from 4.7 mg/L to 6.72 mg/L. See page 9 of the Smith River Plain 2015 Groundwater Monitoring Interim Report for tabulated results[28].

72) In April 2025, North Coast Water Board staff sampled nine (9) private domestic wells within the current and historic lily bulb cultivation area in the Smith River Plain using a domestic well sampling program offered through the California Department of Pesticide Regulation. Nitrate concentrations in these wells ranged from 1.8 mg/L – 5.9 mg/L.

73) This Order requires monitoring of nitrate in groundwater through: (1) individual and regional groundwater trend monitoring to evaluate agricultural impacts on groundwater and (2) drinking water well sampling to notify well users of exceedances of the nitrate MCL of 10 mg/L. These requirements are located within Attachment A: Monitoring and Reporting Program.

F. Coalitions

74) The North Coast Water Board encourages Enrollees to participate in Coalitions or programs (e.g., certification program, watershed group, water quality coalition, monitoring coalition, or other third-party effort) to facilitate and document compliance with this Order. Third-party programs (hereinafter Coalitions) can be used to manage fee payments to the State Water Board, implement compliance education, monitoring and reporting, management practices and/or water quality improvement projects. This Order authorizes the use of grower Coalitions for the above efforts. Specific Coalition requirements can be found in Attachment C: Grower Coalition Requirements.

75) This Order requires Enrollees to provide the Coalition with contact information of the person(s) authorized to provide access to the enrolled property for inspections. This requirement provides a procedure to enable Board staff to contact Enrollee representatives so that it may more efficiently monitor compliance with the provisions of this Order.

G. Regulatory Framework

76) This Order requires Enrollees to comply with all applicable state and federal water quality standards, plans, and policies, and to prevent nuisance conditions. These standards are established through state and federal regulations, including the North Coast Water Board Basin Plan, which identifies the specific Water Quality Objectives (WQOs), beneficial uses, and implementation plans applicable to discharges of waste and the waterbodies that receive such discharges. The State Water Board has also adopted additional plans and policies that may apply to

discharges of waste to surface waters or groundwater from Commercial Lily Bulb Operations.

1. North Coast Water Board Plans and Policies

Basin Plan

77) The Basin Plan is the North Coast Water Board's water quality control planning document. It designates beneficial uses and WQOs for waters of the state, including surface waters and groundwater. The Basin Plan was duly adopted by the North Coast Water Board and approved by the State Water Board, the Office of Administrative Law, and the USEPA, as necessary. The Basin Plan includes plans and policies, including TMDLs . The latest version of the Basin Plan can be found on the North Coast Water Board's website (https://www.waterboards.ca.gov/northcoast/water_issues/programs/basin_plan/).

Beneficial Uses

78) Pursuant to the Basin Plan, Board plans and policies (including State Water Board Resolution No. 88-63 Sources of Drinking Water Policy), and consistent with the Clean Water Act, Table I.2 shows the existing and potential beneficial uses of surface waters in the Smith River Plain:

Table I.2: Existing and Potential Beneficial Uses in the Smith River Plain

Beneficial Use	Abbreviation	Project Area Except Rowdy Creek	Rowdy Creek Watershed
Agricultural Supply	AGR	Existing	Existing
Aquaculture	AQUA	Potential	Potential
Commercial and Sport Fishing	COMM	Existing	Existing
Cold Freshwater Habitat	COLD	Existing	Existing
Tribal Beneficial Use	CUL	Existing	Existing
Estuarine Habitat	EST	Existing	-
Subsistence Fishing	FISH	Existing	Existing
Freshwater Replenishment	FRSH	Existing	Existing
Industrial Service Supply	IND	Existing	Existing
Marine Habitat	MAR	Existing	-
Migration of Aquatic Organisms	MIGR	Existing	Existing
Municipal and Domestic Supply	MUN	Existing	Existing
Navigation	NAV	Existing	Existing
Hydropower Generation	POW	-	Potential
Industrial Process Supply	PRO	Potential	Potential
Rare, Threatened, End.Species	RARE	Existing	Existing
Non-Contact Water Recreation	REC-2	Existing	Existing
Water Contact Recreation	REC-1	Existing	Existing
Spawning, Reproduction, and/or Early Development	SPWN	Existing	Existing
Wildlife Habitat	WILD	Existing	Existing

79) The beneficial use most sensitive to groundwater degradation in the Smith River Plain is Municipal and Domestic Supply, while the beneficial uses most sensitive to surface water degradation are Cold Freshwater Habitat and Tribal Cultural Resources. This Order uses Water Quality Benchmarks that are protective of these most sensitive beneficial uses and, therefore, protective of all beneficial uses of water within the Smith River Plain. A more thorough discussion of Water Quality Benchmarks is located in Section G.1 of these Findings.

80) The tributaries of the Smith River Plain contain much of the Smith River watershed's habitat with high intrinsic potential for coho salmon, supporting both natal and non-natal rearing. Tributaries and sloughs near the estuary provide critical refuge for juveniles and fry displaced during high-flow events, increasing survival, productivity, and life-history diversity. Because the middle and upper Smith River watershed is dominated by steep gradients and high flows, the low-gradient tributaries near the estuary and within the lily bulb cultivation area play a disproportionate role in supporting coho salmon resilience and recovery. Although estuarine and coastal-plain habitats represent a small portion of the overall watershed area, they are vital to the productivity of anadromous fish populations, as all salmonids utilize estuarine environments prior to ocean entry.

81) At least 26 species of fish have been observed in the Smith River Plain and estuary. The Smith River Plain provides habitat to threatened and endangered species including coho salmon, eulachon, tidewater goby, and longfin smelt[29]. Spring- and fall-run Chinook Salmon, Coho Salmon, and Coastal Cutthroat Trout utilize the lower Smith River, its coastal tributaries, sloughs, and estuary throughout the year. One or more of these species is typically present in areas potentially affected under this Order at any given time. Low-gradient freshwater and brackish habitats such as sloughs, backwaters, off-channel ponds, and tidal wetlands are among the most productive rearing areas for juvenile salmonids in the Pacific Northwest, including within the Smith River Plain.

82) The 2014 Coho Salmon Final Recovery Plan from NOAA identified Rowdy Creek, Ritmer Creek, Delilah Creek, Yontocket Slough, and Morrison Creek in the Smith River Plain as some of the highest intrinsic potential habitat for coho salmon in the 762 square mile Smith River watershed[30]. These tributaries are designated essential fish habitat (EFH) under the Magnuson-Steven Fishery Conservation and Management Act (MSFCMA) for Pacific salmon (Chinook and coho) and the estuary is designated EFH for Pacific salmon and Pacific groundfish. EFH is designated for species managed in Fishery Management Plans and is defined as the habitat necessary for managed fish to complete their life cycles. Estuaries, including the Smith River Estuary, are considered Habitat Areas of Particular Concern and are high priorities for EFH conservation[31]. Preserving high-quality water and improving degraded water quality in the Smith River Plain is essential to the support and recovery of threatened and endangered species.

83) The National Oceanic and Atmospheric Administration-National Marine Fisheries Service (NOAA-NMFS) has classified the Smith River population of coho salmon as a core, functionally independent population, which is considered at a high risk of extinction and likely below the depensation threshold.

84) On December 17, 2018, the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA NMFS) issued a letter to the four lily bulb growers remaining at that time that addressed pesticide impacts on Southern Oregon Northern California Coast (SONCC) coho salmon related to lily bulb agricultural operations in the Smith River Plain. The letter communicated concerns regarding elevated concentrations of dissolved copper and other pesticides detected in streams below lily bulb fields, which exceed U.S. Environmental Protection Agency (EPA) Aquatic Life Benchmarks. The letter referenced the Endangered Species Act (ESA) (16 U.S.C. § 1531 et seq.) and NMFS regulations at 50 CFR 223.203 under section 4(d) of the ESA, which prohibit the unlawful "take" of threatened species, including harm defined as acts that significantly impair essential behavioral patterns of listed fish. NOAA NMFS directed the lily bulb growers to implement best management practices such as increasing no-spray buffers and restoring riparian zones to reduce pesticide runoff into tributaries critical for coho salmon habitat. The letter further encouraged cooperative development of a Smith River Plain Water Quality Management Plan and Safe Harbor Agreements to facilitate regulatory compliance and contribute to species recovery.

85) The U.S. Fish and Wildlife Service (USFWS) adopted the Tidewater Goby Recovery Plan[32] (Recovery Plan) in 2005, outlining key actions for improving the species' status sufficiently to warrant downlisting from endangered to threatened, and ultimately delisting. The Recovery Plan includes the Smith River estuary in its North Coast Recovery Unit, noting that the Smith River estuary contains roughly 500 acres of potentially suitable habitat with historical and recent observations of tidewater goby presence, particularly in Tillas Slough. The Recovery Plan recommended, in part, regular monitoring of tidewater goby populations and habitat conditions to track status and hydrologic changes, management of estuarine and lagoon hydrology to preserve brackish conditions essential for goby breeding and survival, and the reestablishment of Tillas Slough populations from Lake Earl.

86) The Smith River and estuary serve as crucial environmental trust resources for cultural, ceremonial, and subsistence beneficial uses for the Tolowa Dee-ni' Nation. These uses include, but are not limited to, fishing, boating, river access, training, swimming and diving, prayer and meditation, religious ceremony and medicinal doctoring, plant gathering, basketry, eeling, shellfish gathering, and food preparation.

<u>Water Quality Objectives</u>

87) Water Code section 13241 provides that the North Coast Water Board is

responsible for establishing water quality objectives which, in the North Coast Water Board's judgment, are necessary for the reasonable protection of the beneficial uses and for the prevention of nuisance. Establishing water quality objectives involves first, designating beneficial uses; and second, selecting the water quality constituents or characteristics and limits or levels on those constituents and/or characteristics necessary to protect the beneficial uses. These objectives can be expressed in numeric (measurable limits or concentrations of a pollutant) or narrative (the desired condition of the waterbody in qualitative terms) form.

When it is necessary to derive numeric values in order to develop discharge limitations that implement narrative water quality objectives or to evaluate compliance with narrative water quality objectives, the Board may consider "all relevant and scientifically valid evidence", including site-specific data, scientific peer-reviewed literature, and numeric values established in other state or federal laws, regulations, plans, policies, or guidelines, or developed and published by other governmental or non-governmental agencies and organizations. (Basin Plan, Section 3.5.1.) "When water quality objectives are established in a basin plan in narrative form, it is appropriate for a regional water board to exercise its professional judgment, relying on scientific studies, to establish numeric limits." (State Water Board, Order WQ 2023-0081, p. 28.)

88) Section 3 of the North Coast Water Board's Basin Plan contains water quality objectives for groundwater and surface waters. These include objectives for chemical constituents, which incorporate promulgated maximum contaminant levels (MCL); pH; sediment; turbidity; and, in relevant part, the following narrative water quality objectives for pesticide and toxicity:

*"**Pesticides**. Waters shall not contain any individual pesticide or combination of pesticides in concentrations that cause nuisance or adversely affect beneficial uses. There shall be no bioaccumulation of pesticide concentrations in bottom sediments or aquatic life that cause nuisance or adversely affect beneficial uses. In no case shall waters designated for use as domestic or municipal supply (MUN) contain concentrations of pesticides in excess of the numeric limits established in title 22 and as prospectively incorporated in 3.4.3 Chemical Constituents."*

*"**Toxicity**[33]**.** Waters shall not contain toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. This objective applies regardless of whether the toxicity is caused by a single substance or the synergistic effect of multiple substances."*

89) The USEPA has adopted the National Toxics Rule and the California Toxics Rule (CTR), which, when combined with the Basin's Plans beneficial use designations, constitute water quality standards that apply to certain inland surface waters or enclosed bays and estuaries within the state. The CTR contains federal water

quality criteria for priority pollutants, including for copper. The CTR aquatic life criteria for copper varies based on hardness and are expressed as dissolved concentrations.

90) The Biotic Ligand Model (BLM) is the current EPA recommended method for determining copper concentrations protective of aquatic life on a site-specific basis and has been adopted by the State of Idaho Department of Environmental Quality and the State of Oregon Department of Environmental Quality to develop state-wide, site-specific water quality criteria for copper. The BLM predicts metal toxicity to aquatic life by estimating how much of a dissolved metal actually binds to sensitive biological sites (biotic ligands) such as fish gills or invertebrate membranes. The model calculates the concentration of a metal at the biotic ligands by simulating how site-specific water chemistry factors influence the chemical form and bioavailability of the metal. The BLM represents a refinement of the hardness-based CTR criteria.

In California, the State Water Board is developing a proposed water quality control policy to establish methods, protocols, and procedures for Regional Water Quality Control Boards to develop, adopt, and implement site-specific water quality objectives for copper and zinc based on the BLM. The BLM uses a set of ten parameters to account for complex chemical reactions associated with copper in the environment: pH, Dissolved Organic Carbon (DOC), Calcium (Ca), Magnesium (Mg), Sodium (Na), Sulfate (SO4), Potassium (K), Chlorine (Cl), Alkalinity, and Temperature.

Using these ten parameters, the BLM generates an Instantaneous Water Quality Criterion (IWQC). The IWQC is used as a water quality threshold for dissolved copper for that specific site and sampling event only. The model's output also includes a toxicity unit (numerical value) to represent the relative risk of copper toxicity in the waterbody at the time of sample collection. Exceedances of the IWQC mean that dissolved copper bioavailability was predicted to occur at a potentially toxic level for the sample in question. Due to the unique water chemistry of the Smith River Plain, risk of toxicity is predicted to occur at a lower dissolved copper concentration by the BLM compared to the hardness-based CTR at the monitoring stations downstream of lily bulb agriculture. Use of this scientifically-valid and more sensitive method is appropriate in this Order to drive the Adaptive Management Program and evaluate compliance with Receiving Water Limitations, given the particular beneficial uses to be protected in the Smith River Plain, including tribal and aquatic life beneficial uses; the water quality objectives reasonably required for that purpose; the need to prevent nuisance; and the provisions of Section 13241, including environmental characteristics in the Smith River Plain, and economic considerations, discussed in further detail in Section I.H of the Findings. (Wat. Code, § 13263, subd. (a).)

91) This Order establishes Water Quality Benchmarks for both surface water and

groundwater, which are based on water quality objectives. Water Quality Benchmarks for surface water are established for both acute and chronic exposure conditions. Exceedance of a Water Quality Benchmark for surface water is determined by considering both concentration and frequency within a Water Year. An acute Water Quality Benchmark is exceeded when the acute concentration is exceeded once within a Water Year, and a chronic Water Quality Benchmark is exceeded when the chronic concentration is exceeded twice within a Water Year.

92) Water Quality Benchmarks for groundwater are also established for both acute and chronic exposure, where water quality values are available. Exceedance of a Water Quality Benchmark for groundwater is determined by considering both concentration and frequency of the exceedance where both acute and chronic values are available. An acute Water Quality Benchmark is exceeded when the acute concentration is exceeded once within a Water Year, and a chronic Water Quality Benchmark is exceeded when the chronic concentration is exceeded in two consecutive Water Years.

93) The Water Quality Benchmarks are either equivalent to the applicable Basin Plan numeric water quality objective or a numeric interpretation of the pesticide and toxicity narrative water quality objectives for surface water and the toxicity narrative quality objective for groundwater. Non-exceedance of a Water Quality Benchmark demonstrates attainment of the corresponding water quality objective and compliance with Receiving Water Limitations in Section II.C of this Order. Conversely, exceedance of a Water Quality Benchmark indicates that discharges may be causing or contributing to an exceedance of a water quality objective. As discussed in Section II.H of this Order, exceedance of a Water Quality Benchmark triggers the Adaptive Management Program; following the time schedule under the Adaptive Management Program, further exceedances may indicate that discharges are causing or contributing to an exceedance of a water quality objective in violation of the Receiving Water Limitations, which may result in further investigative action and/or progressive enforcement.

94) Water Quality Benchmarks for surface water and groundwater monitoring pesticide parameters were determined by reviewing all available pesticide water quality values, including U.S. EPA aquatic life benchmarks, and, exercising best professional judgment consistent with scientific evidence, selecting the most protective (i.e., lowest) values for relevant beneficial uses. In general, the most sensitive beneficial uses for surface waters were Cold Freshwater Habitat and Tribal Cultural Uses and for groundwater was drinking water. Water Quality Benchmarks staff determined were appropriate to drive adaptive management are generally consistent with the State Water Board's numeric guidelines for listing impaired waters under Section 303(d) of the Clean Water Act used to assess data where only narrative water quality objectives have been adopted. Tables I.3 and I.4 present relevant Water Quality Benchmarks for required water quality monitoring constituents for this Order as well as conditions for determining whether an

exceedance of an acute or chronic Water Quality Benchmark has occurred.

Table I.3 Water Quality Benchmarks for Surface Water, Benchmark Exceedances, Beneficial Uses Protected, and Sources

Parameter	Benchmark (ug/L)	Benchmark Exceedance	Use Protected	Source or Reference[34]
Diuron	Acute: 87.5 Chronic: 0.83	Two exceedances of the chronic Water Quality Benchmark in a Water Year -OR- a single exceedance of the acute.	Cold Freshwater Habitat	USEPA Aquatic Life Benchmarks
Ethoprop	Acute: 3.15 Chronic: 0.37	Two exceedances of the chronic Water Quality Benchmark in a Water Year -OR- a single exceedance of the acute.	Cold Freshwater Habitat	Acute: USEPA Aquatic Life Benchmarks Chronic: USEPA Chronic Noncancer HHBs for Pesticides
Imidacloprid	Acute: 0.385 Chronic: 0.01	Two exceedances of the chronic Water Quality Benchmark in a Water Year -OR- a single exceedance of the acute.	Cold Freshwater Habitat	USEPA Aquatic Life Benchmarks
Dissolved Copper	Toxicity Unit[35]<1 (acute and chronic)	Two exceedances of the Chronic BLM-IWQC[36] in a Water Year -OR- single exceedance of the Acute BLM-IWQC.	Cold Freshwater and Estuarine Habitats	Biotic Ligand Model

Table I.4 Water Quality Benchmarks for Groundwater, Benchmark Exceedances, Beneficial Uses Protected, and Sources

Parameter	Benchmark (ug/L)	Benchmark Exceedance	Use Protected	Source or Reference[37]
Diuron	Acute: 1028 Chronic: 2.0	2 consecutive exceedances of the chronic Benchmark or a single exceedance of the acute.	Municipal Drinking Water	Chronic: USGS Health Based Screening Level (HBSL) for one-in-a-million cancer risk estimate Acute: CDPR Human Health Reference Level (HHRL)
Imidacloprid	Acute: 283 Chronic: 500	2 consecutive exceedances of the chronic Benchmark or a single exceedance of the acute.	Municipal Drinking Water	Acute: DPR Human Health HHRL Chronic: USEPA Chronic Human Health Benchmarks for Pesticides (HHBPs)
Mefenoxam	Acute: 3000 Chronic: N/A	A single exceedance of the Benchmark	Municipal Drinking Water	USEPA One-Day or Acute HHBP
Napropramide	Chronic: 710	2 consecutive exceedances of the chronic Benchmark	Municipal Drinking Water	USEPA Chronic or Lifetime HHBP
Nitrate	10 (mg/L)	A single exceedance of the Benchmark	Municipal Drinking Water	USEPA Maximum Contaminant Level (MCL)

Temperature Policy

95) The Basin Plan includes the Policy for the Implementation of the Water Quality Objectives for Temperature in the North Coast Region (Temperature Policy), which specifies that activities resulting in water temperature increases shall be addressed on a case-by-case basis to reduce impairments and prevent further impairment. The Temperature Policy directs staff to examine and address temperature when developing regulatory orders or permits. At a minimum, any program or permit shall take actions to achieve temperature objectives and implement temperature TMDLs, including EPA-established TMDLs. To attain and maintain the water quality objectives for temperature, The North Coast Water Board and its staff implement programs and collaborate with others in such a manner as to prevent, minimize, and mitigate temperature alterations associated with sediment discharges and

controllable water quality factors. Controllable water quality factors affecting water temperature include any anthropogenic activity which results in the removal of riparian vegetation, sediment discharges, impoundments and other channel alterations, reduction of instream summer flows, and the reduction of cold-water sources. The Temperature Policy directs the North Coast Water Board to implement actions to achieve Water Quality Objectives using all available tools, including WDRs.

96) This Order implements the Temperature Policy through requirements and prohibitions within Streamside Areas which: (1) allow the natural establishment and abundance of native riparian vegetation; (2) allow sufficient native riparian vegetation to minimize and control discharge of sediment, nutrients, and pesticides to surface waters; (3) install and/or maintain a minimum width of riparian vegetation and vegetated buffers to achieve site-specific potential effective shade and prevent discharges of sediment, nutrients and pesticides to surface waters; and (4) allow essential functions supporting beneficial uses (e.g., sediment filtering, woody debris recruitment, streambank stabilization, nutrient cycling, pollutant filtering, and shading).

Groundwater Protection

97) The Policy Statement for Groundwater Protection in the North Coast Region, Resolution No. R1-2022-0040, acknowledges the North Coast Water Board is committed to the protection of high-quality groundwater and the restoration of degraded groundwater to support all beneficial uses now and in the future, especially given increasing reliance on groundwater in the North Coast Region. Groundwater supplies in the Smith River Plain are currently beneficially used for: (1) drinking water, sanitation, and hygiene consistent with the Human Right to Water described in North Coast Water Board Resolution No. R1-2019-0024; (2) agriculture and industry which are major economic drivers in the region, (3) Native American ceremonies and traditions; (4) aquaculture operations; and (5) replenishment of flows to streams (e.g., contribution to instream flows) to maintain beneficial uses of surface water, especially cold freshwater habitat, migration of aquatic specifics, wildlife habitat, and spawning, reproduction, and early development of fish.

98) This Order is consistent with the Policy Statement for Groundwater Protection in the North Coast Region by requiring compliance with Receiving Water Limitations, implementation of groundwater protection management practices, groundwater monitoring, and adaptive management where current practices are not adequate to control, minimize, or eliminate agricultural discharges to groundwater.

Other North Coast Water Board Policies

99) This Order is consistent with the approach and best practices identified in Basin Plan policies for the control of excess sediment discharge and delivery by requiring Enrollees to inventory sediment discharge sites on the Commercial Lily Bulb Operation, implement sediment and erosion control management practices, monitor management practice effectiveness, and implement adaptive management where current practices are not adequate to control, minimize, or eliminate excessive sediment discharge.

2. Water Code Considerations

100) The California Water Code (Water Code) grants authority to the State Water Board with respect to state drinking water, water rights and water quality regulations and policy, and establishes nine North Coast Water Boards with authority to regulate discharges of waste that could affect the quality of waters of the state and to adopt water quality regulations and policy.

101) Water Code section 13260(a) requires that any person, citizen, or domiciliary discharging waste or proposing to discharge waste, other than into a community sewer system, that could affect the quality of the waters of the state, file a report of waste discharge (ROWD) to obtain coverage under WDRs or a waiver of WDRs. Waste, person, citizen, and domiciliary are defined in Water Code section 13050. For purposes of this Order, the eNOI is considered a ROWD.

102) Water Code section 13263(a) requires waste discharge requirements to implement any relevant water quality control plans that have been adopted and to take into consideration the beneficial uses to be protected, the water quality objectives reasonably required for that purpose, other waste discharges, the need to prevent nuisance, and the provisions of Section 13241. Relevant plans and policies are discussed throughout. See sections G.1 in the Findings for a discussion of beneficial uses and water quality objectives.

103) Water Code section 13241 requires North Coast Water Boards to consider several factors, including “economic considerations” when establishing water quality objectives to ensure the reasonable protection of beneficial uses and prevent nuisance. Economic Considerations findings are included below.

104) Pursuant to Water Code section 13263(g), no discharge of waste into the waters of the state, whether or not the discharge is made pursuant to WDRs, shall create a vested right to continue to discharge. All discharges of waste into waters of the state are privileges, not rights.

105) Pursuant to Water Code section 13263(i), the North Coast Water Board may prescribe general WDRs for a category of discharges if the discharges are produced by the same or similar operations, involve the same or similar types of waste, require the same or similar treatment standards, and are more appropriately

regulated under general WDRs than individual WDRs. Discharges from Farming have certain common characteristics, such as similar land disturbing activities, use of nutrients and pesticides, agricultural practices, and agricultural road networks that require similar best management practices to control, minimize, and/or prevent discharges of waste. These types of discharges are more appropriately regulated under general WDRs.

106) This Order is consistent with Water Code section 13267 through the Monitoring and Reporting Program and through provisions of the Order that allow access via inspections. Water Code section 13267 states in relevant part:

"(b)(1) In conducting an investigation…, the North Coast Water Board may require that any person who has discharged, discharges, or is suspected of having discharged or, discharging, or who proposes to discharge waste within its region… shall furnish, under penalty of perjury, technical or monitoring reports which the North Coast Water Board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the North Coast Water Board shall provide the person with a written explanation with regard to the need for the reports and shall identify the evidence that supports requiring that person to provide the reports.

(b)(2) when requested by the person furnishing a report, the portions of a report that might disclose trade secrets or secret processes may not be made available for inspection by the public but shall be made available to governmental agencies…However, these portions of a report shall be available for use by the state or any state agency in judicial review or enforcement proceedings involving the person furnishing the report.

(c) In conducting an investigation…, the North Coast Water Board may inspect the facilities of any person to ascertain whether…waste discharge requirements are being complied with. The inspection shall be made with the consent of the owner or possessor of the facilities or, if consent is withheld, with a warrant issued pursuant to…Title 13 (commencing with §1822.50) of Part 3 of the Code of Civil Procedure."

107) Water Code section 13268 provides that any person who fails to furnish a technical or monitoring program or who falsifies any information provided in a technical or monitoring report, pursuant to Water Code section 13267, may be subject to administrative civil liability in an amount not to exceed $1,000 per day of violation. If the matter is referred to the Attorney General for judicial enforcement, a higher liability of $5,000 per day of violation may be imposed. Higher penalties may also be imposed for any person that knowingly commits any violation in section 13268 of the Water Code.

108) Water Code section 13350 provides that any person who discharges waste in violation of WDRs may be (1) subject to administrative civil liability imposed by the North Coast Water Board or State Water Board in an amount of up to $5,000 per day of violation, or up to $10 per gallon of waste discharged; or (2) subject to civil liability imposed by a court in an amount of up to $15,000 per day of violation, or up to $20 per gallon of waste discharged. The actual calculation and determination of administrative civil penalties must be consistent with the State Water Board Water Quality Enforcement Policy (Enforcement Policy) and the Porter-Cologne Act.

3. Nonpoint Source Policy

109) The State Water Board's Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program adopted on May 20, 2004 (NPS Policy) requires regulation of nonpoint source pollution[38] in California through WDRs, waivers of WDRs, or discharge prohibitions (Water Code §13146; Gov. Code §11353).

110) The federal Clean Water Act (CWA) requires states to develop a program to protect the quality of water resources from the adverse effects of nonpoint source (NPS) water pollution. The NPS Policy is the State Water Board framework for addressing NPS pollution and requires each of the nine North Coast Water Boards to regulate NPS pollution, including agricultural discharges, via WDRs, Waivers of WDRs, or a prohibition. The NPS Policy states that North Coast Water Board implementation programs for NPS pollution control must include five key elements, as follows:

Key Element 1: An NPS control implementation program's ultimate purpose shall be explicitly stated. Implementation programs must, at a minimum, address NPS pollution in a manner that achieves and maintains water quality objectives and beneficial uses, including any applicable antidegradation requirements.

Key Element 2: An NPS control implementation program shall include a description of the management practices and other program elements that are expected to be implemented to ensure attainment of the implementation program's stated purpose(s), the process to be used to select or develop management practices, and the process to be used to ensure and verify proper management practices implementation. The North Coast Water Board must be able to determine that there is a high likelihood that the program will attain water quality requirements. This will include consideration of the management practices to be used and the process for ensuring their proper implementation.

Key Element 3: Where the North Coast Water Board determines it is necessary to allow time to achieve water quality requirements the NPS control implementation program shall include a specific time schedule, and corresponding quantifiable milestones designed to measure progress toward reaching the specified requirements.

Key Element 4: An NPS control implementation program shall include sufficient feedback mechanisms so that the North Coast Water Board, Enrollees, and the public can determine whether the program is achieving its stated purpose(s) or whether additional or different management practices or other actions are required.

Key Element 5: Each North Coast Water Board shall make clear, in advance, the potential consequences for failure to achieve an NPS control implementation program's stated purpose.

111) This Order constitutes an NPS Implementation Program for discharges regulated by this Order. This Order is consistent with all key elements of the NPS Policy as described below:

a) The ultimate purpose of this Order is explicitly stated in Section I: Background and Purpose. This Order includes requirements to meet applicable water quality objectives and beneficial uses, including any applicable State Water Board Resolution 68-16 (Antidegradation Policy) requirements. Further, discussion of this Order's implementation of antidegradation requirements is given below. This Order is consistent with Key Element 1.

b) The North Coast Water Board is generally restricted by Water Code section 13360 from prescribing the particular manner of compliance with an order requirement. However, it may set forth receiving water limitations and performance standards and require Enrollees to report on what practices they have or will implement to meet those receiving water limitations and performance standards. Examples of the types of practices that Commercial Lily Bulb Operations may implement to meet program goals and objectives have been described and evaluated in the Environmental Impact Report. This Order requires each individual operation to develop a Farm Evaluation that will describe its management practices in place to protect surface water and groundwater quality. This Order also requires Enrollees to comply with an Adaptive Management Program in response to: (1) exceedances of a Water Quality Benchmark or Receiving Water Limitation, (2) where management practices are not properly implemented, or (3) as directed by the Executive Officer. The Adaptive Management Program includes iterative adaptive management for improved management practices to address Water Quality Benchmark or Receiving Water Limitation exceedances. The requirements of this Order are consistent with Key Element 2.

c) The North Coast Water Board acknowledges that, given existing water quality conditions and the time needed to develop and implement actions to address discharges, it may be necessary to allow time to achieve Receiving Water Limitations in this Order. The Adaptive Management Program

required by this Order includes a time schedule and specific quantifiable milestones for implementing required management practices and meeting Receiving Water Limitations as soon as practicable. The Adaptive Management time schedule requirements in this Order are consistent with Key Element 3.

d) To provide feedback on whether program goals are being achieved, this Order requires surface and groundwater quality monitoring to evaluate the effectiveness of implemented management practices. This feedback will allow iterative implementation of practices to ensure that program goals are achieved. The North Coast Water Board finds the level of surface and groundwater quality monitoring required by this Order will result in sufficient data collection and reporting to allow for meaningful feedback on the effectiveness of management practices, while also avoiding unwarranted or excessive time and costs on Enrollees. The feedback mechanisms required by this Order are consistent with Key Element 4.

e) This Order establishes the following consequences where requirements are not met: (1) the Coalition or Enrollees will be required, in an iterative process, to conduct additional monitoring and/or implement management practices where water quality objectives are not being met; (2) Enrollees will be required, where the Coalition fails to meet the requirements of this Order, to enroll in the Order individually, and (3) the North Coast Water Board will initiate progressive enforcement action through its Enforcement Policy where the iterative management practices process is unsuccessful, program requirements are not met, or time schedules are not met. Section II of this Order describes the consequences for failure to meet requirements through the North Coast Water Board's Enforcement Policy and is consistent with Key Element 5.

4. Statement of Policy with Respect to Maintaining High Quality Waters in California (Antidegradation Policy)

112) Federal regulation 40 C.F.R. section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal antidegradation policy. In 1968, the State Water Board adopted the Statement of Policy with Respect to Maintaining High Quality of Waters in California, Resolution No. 68-16 (Antidegradation Policy).[39] The State Antidegradation Policy is deemed to incorporate the Federal Antidegradation Policy where the federal policy applies under federal law.[40] The State Antidegradation Policy establishes a state policy to regulate the granting of permits and licenses for the disposal of wastes into the waters of the state so as to achieve the highest water quality consistent with maximum benefit to the people of the State.[41] The federal and state policies generally require that the existing quality of water bodies be maintained, unless degradation is justified through specific findings.[42]

113) The Antidegradation Policy, by its terms, applies only to high-quality waters of the state. High quality waters are those surface waters or areas of groundwater that have a baseline water quality better than required by water quality control plans and policies. The baseline water quality considered in making the appropriate findings is generally the best quality of the water since 1968, the year of the adoption of the Antidegradation Policy.[43] This determination is made on a waterbody-by-waterbody and constituent-by-constituent basis. In the context of diffuse discharges regulated by a general order, the State Water Board provided the following guidance on determining whether a discharge impacts high quality waters:

> *"When assessing baseline water quality for a general order, we find a general review and analysis of readily available data is sufficient. . . . North Coast Water Boards should not delay the implementation of a regulatory program in order to conduct a comprehensive baseline assessment and analysis—especially where, as here, the general order imposes essentially the same iterative approach for management practices and other requirements regardless of whether or not the receiving water is high quality[44]."*

114) If a discharge will degrade high quality water, the discharge is allowable if there is a finding that any change in water quality (1) will be consistent with maximum benefit to the people of the State, (2) will not unreasonably affect present and anticipated beneficial uses of such water, and (3) will not result in water quality less than that prescribed in state policies. Maximum benefit determinations should be made on a case-by-case basis, with consideration given to various factors, including economic and social costs, tangible and intangible, of the proposed discharge, as well as the environmental aspects of the proposed discharge, including benefits to be achieved by enhanced pollution controls, and implementation of feasible alternative treatment or control methods. Both costs to the discharger and affected public must be considered.[45]

115) Additionally, the Board must find that any activities that result in discharges to such high quality waters are required to use the best practicable treatment or control of the discharge necessary to avoid pollution or nuisance and to maintain the highest water quality consistent with the maximum benefit to the people of the State. Best practicable treatment or control (BPTC) determinations should consider relative benefits of proposed treatment or control methods to proven technologies; performance data; alternative methods of treatment or control; methods used by similarly situated dischargers; and/or promulgated best available technology or other technology-based standards. The costs of the treatment or control should also be considered and would be considered in determining the "maximum benefit to the people of the State."[46]

116) North Coast Water Board staff completed a general baseline water quality assessment for surface and groundwater in the Smith River Plain based on readily

available data. The primary constituents of concern for groundwater include nitrates and pesticides. The primary constituents of concern for surface water include nutrients, pesticides (synthetic compounds and dissolved copper), and turbidity. Focusing on these constituents of concern, the North Coast Water Board evaluated water quality using all available data from multiple data sources maintained in the following management systems: CEDEN, GeoTracker, CDPR's SURF database, CDPR's well testing program, and GAMA[47]. Existing water quality in the Smith River Plain is outlined in the Findings above. This Order accounts for the fact that at least some surface water and groundwaters in the Smith River Plain are considered high-quality for one or more constituents of concern per the Antidegradation Policy.

117) Commercial lily bulb farming in the Smith River Plain involves soil disturbance and use of agricultural chemicals, both of which can generate discharges of waste. If not properly managed, these discharges can degrade water quality, cause or contribute to pollution and nuisance conditions, and adversely affect beneficial uses of waters of the state. The North Coast Water Board anticipates that the requirements of this Order will prevent degradation of high-quality waters over time. Since implementation of the 2021 Management Plan, in which all lily bulb growers agreed to voluntarily implement a suite of water quality management practices designed to reduce pesticide and nutrient runoff, erosion, and direct discharge of pollutants to surface waters, concentrations of synthetic pesticides and dissolved cooper have decreased. Additional measures required under this Order are anticipated to further reduce discharge pollutant loadings over time. The North Coast Water Board cannot find, however, that there will be no degradation of high-quality waters under the requirements of this Order. In particular, the North Coast Water Board anticipates degradation of some high-quality waters during the period of time that Dischargers are working to achieve compliance with receiving water limitations via the iterative implementation of management practices. As appropriate controls and management practices are implemented, the degradation is expected to be limited and, in many cases, reversible. The Order authorizes degradation only up to the level of the objectives and requires implementation of controls such that discharges will not cause or contribute to exceedances of those objectives within a discrete time schedule. While the North Coast Water Board makes findings authorizing degradation of high-quality waters under this Order, it will, wherever feasible, require controls to prevent and reverse degradation by working with dischargers and third parties to ensure controls are implemented in an iterative manner as technology evolves and advances.

118) The North Coast Water Board finds that any limited degradation that may occur from discharges to high-quality surface and groundwater water bodies even following implementation of all applicable management practices designed to control discharges is to the maximum benefit of the people of the State. In setting the requirements of this Order, the Board has considered the social and economic

significance of the commercial lily bulb industry in the Smith River Plain, including its contribution to agricultural production and associated economic activity in Del Norte County. At the same time, the Board recognizes that Tribal representatives and other community members have stated that the commercial lily bulb industry does not broadly support the local community and that the economic benefits are not shared equitably. Some of the benefits are externalized, relative to where the lily bulbs are grown and environmental and cultural impacts occur[48].

119) The North Coast Water Board also recognizes the social and environmental costs associated with the commercial lily bulb industry, including impacts on aquatic life, tribal uses, recreational uses, and local residents, [expand on social and environmental costs___][49]. The Smith River Plain provides habitat to numerous threatened and endangered aquatic species and serves as crucial environmental trust resources for cultural, ceremonial, and subsistence beneficial uses for the Tolowa Dee-ni' Nation. This Order addresses these costs by, among other provisions, requiring compliance with Receiving Water Limitations through the Adaptive Management framework and robust surface water monitoring to verify compliance.

120) This permitting approach is to the maximum benefit of the people of the state because alternative methods of regulation, such as immediate compliance with Receiving Water Limitations or imposition of additional, specific discharge prohibitions, may result in immediate cessation of discharges, threatening the benefits associated with this agricultural activity.

121) The Board finds this Order and the requirements herein to be, on balance, supportive of environmental and water quality benefits, local employment, and the community. For these reasons, any limited degradation that may occur as a result of Commercial Lily Bulb Operations, despite implementation of measures required by this Order, is consistent with the maximum benefit to the people of the state.

122) As detailed in above Findings, the Basin Plan assigns 20 beneficial uses to surface and ground water in the Smith River Plain. This Order protects beneficial uses by meeting water quality objectives, at a minimum, which is set as the floor of the Antidegradation Policy. Waste discharges must be reduced and water quality improved to achieve water quality objectives and protect beneficial uses. Waste discharges must not cause or contribute to exceedances of water quality objectives either immediately or through a specific time schedule.

123) The North Coast Water Board further finds that the permitted discharges will be controlled by BPTC. The North Coast Water Board cannot dictate the manner of compliance with water quality orders (Wat. Code, section 13360), and no single set of management practices is appropriate for every field. Rather, BPTC must be implemented through a combination of practices that sometimes may be site specific that will ensure that discharges meet water quality objectives and eliminate

unreasonable degradation. This Order requires Farm Evaluations, Irrigation and Nitrogen Management Plans, management practice tracking, and surface and groundwater water quality monitoring and reporting that are designed to ensure that degradation is prevented or minimized and that management practices are protective of water quality. The Order relies on implementation of practices and treatment technologies that constitute BPTC/best efforts, based to the extent possible on existing data. Management measures and monitoring may be modified as data are assessed and reported and whenever site evaluations show that measures need to be improved to meet water quality standards.

5. Sources of Drinking Water Policy

124) The Sources of Drinking Water Policy (Policy) (SWRCB Resolution No. 88-63) established the principle that all surface and ground waters within the State are considered suitable or potentially suitable for the municipal and domestic supply ("MUN") beneficial use with certain exceptions. Exceptions applicable to groundwater include: where there is contamination (unrelated to the pollution incident) that cannot reasonably be treated for domestic use; where groundwater contains total dissolved solids ("TDS") exceeding 3,000 milligrams per liter and is not reasonably expected to supply a public water system; and where there is insufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day.

125) The Policy acknowledges North Coast Water Boards have discretion to separately evaluate whether bodies of water are presently or potentially suitable for MUN designation. North Coast Water Boards shall also assure that the beneficial uses of municipal and domestic supply are designated for protection wherever those uses are presently being attained, and assure that any changes in beneficial use designations for waters of the State are consistent with all applicable regulations adopted by the Environmental Protection Agency

6. Human Right to Water

126) On February 16, 2016, and April 23, 2019, the State Water Board and the North Coast Water Board adopted resolutions (Resolution No. 2016-0010 and R1-2019-0024, respectively) identifying the human right to water as a top priority and core value of the State Water Board and Regional Water Quality Control Boards (collectively the Water Boards) in association with Water Code section 106.3. The resolutions stated the Water Boards will work "to preserve, enhance, and restore the quality of California's water resources and drinking water for the protection of the environment, public health, and all beneficial uses, and to ensure proper water resource allocation and efficient use, for the benefit of present and future generations." This Order promotes that policy by requiring the Enrollees to meet water quality objectives, as applicable, designed to protect human health and ensure that water is safe for domestic uses.

7. Statewide Precedential Order

127) The State Water Board Irrigated Lands Regulatory Program sets forth precedential requirements for all Regional Irrigated Lands in DWQ 2018-0002 In the Matter of Review of Waste Discharge Requirements General Order No. R5-2012-0116 for Enrollees Within the Eastern San Joaquin River Watershed (Statewide Precedential Order).

128) Lily bulb cultivation is irrigated agriculture; therefore, Enrollees regulated under this Order are part of the State and North Coast Water Board Irrigated Lands Regulatory Program and subject to the Statewide Precedential Order requirements that the State Water Board designated as precedential. This Order maintains consistency with the Statewide Precedential Order requirements by including conditions related to Enrollee outreach events, Farm Evaluations, sediment and erosion controls, irrigation and nitrogen management, record keeping, groundwater quality monitoring for Enrollees, and the option for grower coalition(s). Additionally, this Order requires monitoring and reporting to verify and provide feedback on the degree and effectiveness of implementation of these precedential requirements.

129) Specifically, this Order implements Statewide Precedential Order requirements through: (1) Irrigation and Nutrient Management Plans; (2) Drinking Water Supply Well Monitoring; (3) Groundwater Quality Trend Monitoring; (4) Compliance education; and (5) Groundwater Protection Plans that include Groundwater Protection Targets as described in Attachment A.

Groundwater Vulnerability Areas

130) Precedential requirements set forth in the Statewide Precedential Order establish “high and low vulnerability” groundwater basins for threat from nitrates. The Statewide Precedential Order requires that the development of Groundwater Protection Formulas and certification of irrigation and nutrient management plans be prioritized in “high vulnerability” groundwater basins which are defined in the Statewide Precedential Order as areas “where known groundwater quality impacts exist for which irrigated agricultural operations are a potential contributor or where conditions make groundwater more vulnerable to impacts from irrigated agricultural activities.”

131) The North Coast Water Board adopted the Groundwater Basin Evaluation and Prioritization Resolution No. R1-2021-0006[5] which identifies priority groundwater basins having a relatively high threat from salts and nutrients and that would benefit from salt and nutrient management planning. The North Coast Water Board is required to update these priority basins every five years per the State Water Board Resolution No. 2009-0011, Recycled Water Policy. The Smith River Plain is categorized as a Priority 2 groundwater basin under the Groundwater Basin Evaluation and Prioritization Resolution.

132) In 2000, in response to Executive Order D-5-99, State Water Board staff created a map where published hydrogeologic information indicates soil or rock conditions that may be more vulnerable (or susceptible) to groundwater contamination: "Hydrogeologically Vulnerable Areas[50]." The map was created using Department of Water Resources (DWR) and US Geological Survey (USGS) data to identify areas where geologic conditions are more likely to allow recharge at rates substantially higher than in lower permeability or confined areas of the same groundwater basin. The Smith River Valley Groundwater Basin was included in this 2000 map.

133) This Order establishes the Smith River Plain as a 'high vulnerability' groundwater basin for the purposes of the relevant Statewide Precedential Requirements due to its Priority 2 groundwater basin status, its classification as a 'Hydrogeologically Vulnerable Area,' and 3 of 7 groundwater samples with documented exceedances of the nitrate MCL in the 2015 Smith River Plain Groundwater Interim Monitoring Report[51].

134) As more data becomes available through monitoring and reporting under this Order, and no sooner than five years following Order adoption, the North Coast Water Board's Executive Officer may re-classify the Smith River Plain groundwater vulnerability status if data indicates that discharges from lily bulb cultivation are not causing or contributing to exceedances of water quality objectives, or a trend of degradation of groundwater that may threaten applicable basin plan beneficial uses.

8. California Environmental Quality Act

135) For the purpose of adoption of this Order, the North Coast Water Board is the lead agency pursuant to the California Environmental Quality Act (CEQA) (Pub. Res. Code §21000 et seq.).

136) On October 10, 2024, the North Coast Water Board sent a Notice of Preparation (NOP), which included an Initial Study, to public agencies and persons with potential interest in the project. Copies of the NOP and Initial Study were available for review at the North Coast Water Board Santa Rosa office. Additionally, the NOP and attached Initial Study were posted at the North Coast Water Board's webpage (http://www.waterboards.ca.gov/northcoast/) and an announcement of its availability was sent to individuals that subscribed to electronic mailing lists relevant to the proposed Lily Bulb Order. The NOP and the attached Initial Study are available online at: https://ceqanet.lci.ca.gov/2024100484

137) On October 22, 2024, the North Coast Water Board held a hybrid scoping meeting to solicit input from agencies and interested parties on issues to be addressed in the EIR. The scoping meeting included a description of the meeting purpose, proposed requirements, presented an overview of the environmental review process and preparation of the EIR, and included a public comment period.

138) During the public comment period for the Initial Study the North Coast Water Board received written and oral comments from Northcoast Environmental Center, California Farm Bureau, California Department of Fish and Wildlife, California Coastal Commission, Save California Salmon, Lily Bulb Growers (Rob Miller, Matthew Westbrook, Don Crockett), Sharon Tanner and Brian McNaughton, Native American Heritage Commission, Phoebe Lenhart, Richard Blair, Alicia Williams, Gil Vargas, Carl Page, John Roberts, Janelle Kobalt, Josefina Barrantes (Environmental Protection Information Center), Regina Chichizola (Save California Salmon), Andrew Orahoske, Katie Rian (California Department of Fish and Wildlife), and Candice Vargas.

139) Prior to the adoption of this Order, and after considering public comment, the North Coast Water Board certified a final Environmental Impact Report (EIR) that identifies the potential environmental impacts associated with this Order and identifies mitigation measures to reduce the potential environmental impacts.

140) This Order relies on the environmental impact analysis contained in the final EIR to satisfy the requirements of CEQA. The final EIR identified, disclosed, and analyzed the potential environmental impacts of the Order. The potential compliance activities undertaken by the regulated Enrollees in response to this Order fall within the range of compliance activities identified and analyzed in the final EIR. Therefore, all potentially adverse environmental impacts of this Order have been identified, disclosed, and analyzed in the final EIR. If it is determined that an Enrollee filing for coverage under this Order could create impacts not identified in the final EIR, individual WDRs would be prepared for that Enrollee and additional CEQA analysis performed, which would likely tier off the final EIR as necessary. (See Cal. Code Regs., tit.14 §15152). [PLACEHOLDER for Findings from Final Environmental Impact Report].

H. Cost Considerations

141) Water Code section 13241 requires the North Coast Water Board to consider certain factors, including economic considerations, in the adoption of water quality objectives. Water Code section 13263 requires the North Coast Water Board to take into consideration the provisions of Water Code section 13241 in adopting waste discharge requirements. The following findings discuss the anticipated cost of compliance with the Order[52]. Several assumptions were required to be made for these analyses and there are several inherent limitations and uncertainties, discussed below.

142) When establishing monitoring and reporting requirements under Water Code section 13267, the North Coast Water Board must ensure that the burden, including costs, of the reports bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. Many of the costs considered below are costs associated with the monitoring and reporting

requirements of this Order. Enrollees can reduce their costs by joining a Third-Party Program for water quality monitoring and reporting in lieu of individual monitoring and reporting.

143) The monitoring and reporting requirements of this Order allows the North Coast Water Board to identify agricultural waste discharges with a higher risk of degrading water quality so that those discharges may be promptly minimized or prevented. Monitoring and reporting of nitrogen application and groundwater quality, protect human health by informing the North Coast Water Board of discharges that may affect the quality of water designated as municipal and domestic supply and by allowing assessment of the extent to which the water quality objectives are being met.

144) The North Coast Water Board needs these reports to document and ensure compliance with this Order. The North Coast Water Board finds that the burden of the requirements of the Order bears a reasonable relationship to the benefits of the requirements.

1. Cost of Compliance with the Order

145) The cost of compliance with the Order under existing conditions includes the costs associated with water quality fees, monitoring and reporting, and any management practices that may need to be implemented pursuant to the Order requirements. These costs are described further below.

Water Quality Fees

146) The State Water Board sets a Water Quality Fee Schedule, which includes agricultural and Irrigated Lands Regulatory Programs throughout the state, as specified in California Code of Regulations, title 23, section 2200.6. All enrolled Commercial Lily Bulb Operations must pay the State Water Board fees on an annual basis. Although the State Water Board fees may change from year to year, the fee categories/schedule for the 2025/2026 fiscal year is shown below.

a) If an Enrollee is a member of a group that has been approved by the North Coast Water Board or North Coast Water Board's Executive Officer to manage fee collection and payment, then the annual fee shall be $1.50 per acre for all enrolled parcels.

b) If an Enrollee is not a member of a group that has been approved by the North Coast Water Board or North Coast Water Board's Executive Officer to manage fee collection and payment, then the annual fee shall be: $37.40 per acre up to 300 acres plus $18.71 per acre over 300 acres with a minimum fee of $710.

147) In Regions that have implemented Irrigated Lands Orders with Third-Party Programs or Grower Coalitions, most Enrollees have elected to enroll through those entities. Coalitions in Irrigated Lands Regulatory Programs manage fee collection, conduct representative surface and groundwater monitoring, provide compliance education, and assist Enrollees with general Order requirements. The North Coast Water Board anticipates that most Enrollees under this Order will also elect to enroll through a Coalition.

Compliance with Order Requirements

148) All Enrollees must comply with requirements to implement and adapt management practices related to sediment and erosion control; irrigation, pesticide, and nutrient management; and Streamside Area setbacks. This Order provides Enrollees flexibility in selecting management practices and requires Enrollees to monitor and report discharges and implement management practices to minimize or prevent discharges of waste.

149) Enrollees may be required to implement improved or additional management practices, as necessary, and report on the water quality-related outcomes of their management practice implementation. Enrollees must, ultimately, implement management practices that result in compliance with the Order.

150) Management practices associated with irrigation, nutrient and pesticide use, and sediment and erosion control are already being implemented by lily bulb growers in the Smith River Plain. This may be due to requirements imposed by other regulatory agencies (e.g., pesticide tracking and reporting by the Department of Pesticide Regulation and Agricultural Commissioners) and through voluntary actions supported by the 2021 Management Plan.

151) Implementation of management practices may also have direct net cost benefits to a Commercial Lily Bulb Operation (e.g., irrigation and nutrient management can result in less fertilizer costs and reduced water/pumping costs for irrigation; sediment and erosion management minimize or prevent erosion of valuable topsoil).

152) The U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) has developed standard agricultural management practices to address irrigation and nutrient management, pesticide management, and sediment and erosion control management, some of the more common of which are discussed below. Implementation of many of these practices would result in compliance with multiple requirements of the Order. Table I.5 provides estimated costs of management practices/scenarios Enrollees may implement to meet the requirements in the Order, as reported by USDA, NRCS.

a) Grassed Waterway– involves installing a shaped or graded channel with suitable vegetation to carry surface water at a non-erosive velocity to a stable outlet. Runoff is conveyed from terraces, diversions, or other water concentrations without causing erosion or flooding. Water quality is protected and/or improved. Costs range between $2,000 and $3,000 per acre.

b) Contour Farming – this practice is installed on the entire field. A survey is completed by trained and certified Federal, State, local personnel or consultant to determine and "stake" contour row arrangement. Permanent row markers are established to ensure that this practice is maintained for the life of this practice. All field operations including disking, bedding, planting, and cultivation are performed on the contour which is near perpendicular to the field slope. Costs range between $15 to $20 per acre.

c) Filter Strip – involves establishing a strip or area of herbaceous vegetation that removes contaminants from overland flow. Filter strips can be established anywhere environmentally sensitive areas need to be protected from sediment, or other suspended solids, and dissolved contaminants in runoff. Costs range between $200 to $300 per acre.

d) Integrated Pest Management (IPM) program – involves implementing a site-specific combination of pest prevention, pest avoidance, pest monitoring, and pest suppression strategies. An IPM approach seeks to prevent or mitigate offsite pesticide risks to water quality from leaching, solution runoff and adsorbed runoff losses; and prevent or mitigate on-site pesticide risks to pollinators and other beneficial species through direct contact; among other goals. Costs range between $50 and $100 per acre.

e) Nutrient Management – involves managing the amount (rate), source, placement (method of application), and timing of plant nutrients and soil amendments. The practice is implemented to minimize agricultural nonpoint source pollution of surface waters and groundwater, among other reasons. Costs associated with this practice include soil testing, analysis, and implementation of the nutrient management plan and recordkeeping. Costs range between $10 and $320 per acre.

f) Riparian Vegetation Buffer – involves establishment of an area of predominantly trees and/or shrubs located adjacent to and up-gradient from waterbodies. The practice may be implemented to reduce excess amounts of sediment, organic material, nutrients and pesticides in surface runoff and reduce excess nutrients and other chemicals in shallow groundwater flow; reduce pesticide drift entering the waterbody; restore riparian plant communities; create shade to lower or maintain water temperatures to improve habitat for aquatic organisms; or to provide other benefits. Costs

vary based on whether riparian buffer vegetation is established through seeding, cuttings, bare-root plantings, or small or large containers. For scenarios where land is taken out of production to establish the riparian vegetation buffer, foregone income is considered. Costs range between $3,000 to $5,500 per acre.

g) Retention/Detention Basin – involves constructing a basin with an engineered outlet, formed by excavating a dugout, constructing an embankment, or a combination of both. The purpose of the retention/detention basin is to capture and detain pollutant-laden runoff, or other debris for a sufficient length of time to allow it to settle out in the basin. Costs are estimated between $6,000 to $13,000 per basin.

h) Vegetated Treatment Area – involves permanent herbaceous vegetative area or channel installed down slope from a planted area. Stormwater runoff is directed into the VTA to capture dissolved pollutants. This practice addresses water quality degradation due to uncontrolled pesticide runoff that can flow into surface waters or leach into ground water. Costs are estimated between $10,000 and $12,000 per acre.

153) These potential costs were considered when the water quality protection requirements were developed for the Order.

Table I.5: Estimated Costs[53] of Management Practices/Scenarios for Water Quality Protection

Management Practice	Typical Scenario Size	Unit Cost	Total Cost (low)	Total Cost (High)
Grassed Waterway (412)	1 acre	$2000-$3000/acre	$2,000	$3,000
Contour Farming (330)	10 acres	$15-$20/acre	$150	$200
Filter Strip (393)	1 acre	$200-$300/acre	$200	$300
Integrated Pest Management (IPM) program (595)	40 acres	$50-$100/acre	$2,000 g	$4,000
Nutrient Management (590)	40 acres	$10-$320/acre	$400	$12,800

Management Practice	Typical Scenario Size	Unit Cost	Total Cost (low)	Total Cost (High)
Riparian Vegetation Buffer (391)	1.5 acres	$3,000-5,000/acre	$4,500	$7,500
Retention Basin (638)	Basin	Each	$6,000	$13,000
Vegetated Treatment Area (635)	1 acre	$10,000-$15,000/acre	$10,000	$15,000

Monitoring and Reporting

154) All Enrollees are required to conduct surface water and groundwater monitoring and reporting either individually or as part of a Coalition effort. All Enrollees are required to report management practice implementation annually in their Farm Evaluation and report nitrogen applied and removed, in the Irrigation and Nitrogen Management Plan (INMP). Refer to Attachment A for monitoring and reporting requirements and Tables I.6-11 for estimated costs.

Table I.6: Estimated Cost of Surface Water Monitoring Requirements

Parameter	Annual Cost (Analytical + Materials and Labor) per Monitoring Station	Per Acre Cost (assumes 1000 acres) per Monitoring Station	Per Acre Cost for 7 Monitoring Stations
Dissolved Copper	$300	$0.30	$2.10
BLM Field Parameters	$150	$0.15	$1.05
BLM Lab Parameters (optional)	$600	$0.60	$4.20
Imidacloprid	$900	$0.90	$6.30
Diuron	$900	$0.90	$6.30
Ethoprop	$900	$0.90	$6.30

Table 1.4 estimates the total annual cost of surface water monitoring requirements (per monitoring site) given a sampling frequency of three times per year. Collecting BLM lab

parameters are ***optional***; Enrollees or the Coalition may instead use tributary-specific default values for BLM Analysis given in Table A.5 in Attachment A: Monitoring and Reporting Program. Assuming seven monitoring sites and 1000 enrolled acres, the estimated cost per acre for surface water monitoring for Enrollees in a Coalition is **$22.05**. If the default BLM lab parameters are not used, and instead BLM lab parameters are collected, the total cost is estimated to be **$26.25 per acre**.

For Individual Enrollees, assuming monitoring of one site, the total of surface water monitoring is **$3,150** per year**.** If the default BLM lab parameters are not used, the total cost is **$3,750** per year. Per acre costs are variable by farm size.

Table I.7: Estimated Cost of Groundwater Trend Monitoring Requirements

Parameter	Annual Cost per location	Per Acre Cost (3 sites, 1000 acres)
Nitrate	$750	$2.25
Pesticides	$1550	$4.65

Table I.7 estimates the total cost of Groundwater Trend Monitoring Requirements. The total annual cost for Individual Enrollees would be **$2,300**. The total annual per-acre cost for Enrollees in a Coalition would be **$6.90** per acre.

Table I.8 estimates total cost of representative monitoring requirements for Enrollees in a Coalition and Individual Enrollees. Cost estimates assume the use of default values, where possible, for BLM analysis.

Table I.8: Estimated Cost of Groundwater Trend Monitoring Requirements

Task	Total Estimate for Individual Enrollees	Total Cost per acre for Enrollees in a Coalition
Surface Water Monitoring	$3,150	$22.05
Groundwater Monitoring	$2,300	$6.90
Total	**$5,450**	**$28.95**

Table I.9 estimates farm-specific monitoring annualized over five years. Table I.10 provides those estimates for Enrollees in a Coalition.

Table I.9: Estimated Annualized Monitoring and Reporting Costs over Five Years for Individual Enrollees

Task	Cost Estimate	Requirements
Drinking Water Supply Well Monitoring (nitrates)	$110 per well	Annual sampling for three years for nitrates and once every five years after that.
Drinking Water Supply Well Monitoring (pesticides)	$200-1050 per well.	Sampling every five years for 6800(a) listed pesticides that the Enrollee has applied.
INMP Requirements	$250 per farm	Includes annual soil and irrigation water testing and INMP certification[15].
Annual Compliance Form	$250-$500	Includes management practice reporting, nitrogen reporting, outreach attendance, CEQA mitigation measure monitoring, and annual water quality monitoring results.
Trend Monitoring Report	$250-500	Includes water quality results for five-year monitoring requirements and trend analysis.

Table I.10: Estimated Annualized Monitoring and Reporting Costs Over Five Years for Enrollees in a Coalition

Task	Cost Estimate	Requirements
Drinking Water Supply Well Monitoring (nitrates)	$110 per well	Annual sampling for three years for nitrates and once every five years after that.
Drinking Water Supply Well Monitoring (pesticides)	$200-1050 per well.	Sampling every five years for 6800(a) listed pesticides that the Enrollee has applied.
INMP Reporting	$2.50 per acre	Includes annual soil and irrigation water testing and INMP certification[16].
Annual Compliance Report	$12.50 per acre	Includes annual management practice reporting and annual water quality monitoring results.
Trend Monitoring Report	$5.00 per acre	All elements and requirements as detailed in the MRP.

Technical Reports and Planning Documents

155) As part of Order compliance, Individual Enrollees and Coalitions on behalf of their enrolled members are required to submit the following technical reports and planning documents:

Table I.11: **Estimated Annualized Technical Reports and Planning Document Costs Over Five Years**

Task	Cost Estimate	Requirements
Water Quality Monitoring Workplan (Individual Enrollees)	$5000	Workplan that details how Enrollee shall comply with monitoring and reporting requirements as detailed in Attachment A: MRP.
Water Quality Monitoring Workplan (Coalition)	$5000-$10,000	Workplan that details how Coalition shall comply with monitoring and reporting requirements as detailed in Attachment A: MRP.
Groundwater Protection Plan (Coalition)	$5,000-$10,000	Coalition may elect to propose a Groundwater Protection (GWP) Formula to the Executive Officer as described in Attachment A: Section V.
Water Quality Management Plan (WQMP) for Surface Water	$10,000-$20,000	Enrollee or Coalition must submit a WQMP as part of Adaptive Management requirements that quantifiably demonstrate that practices implemented will meet Receiving Water Limitations of Order. Note: cost estimate includes WQMP development only. See Table I.3 for estimates of implementing management practices for water quality protection.
WQMP for Groundwater	$10,000-$20,000	Enrollee or Coalition must submit a WQMP as part of Adaptive Management requirements that quantifiably demonstrate that practices implemented will meet Receiving Water Limitations of Order. Note: cost estimate includes WQMP development only. See Table I.3 for estimates of implementing management practices for water quality protection.
Hydrogeological Evaluation of Groundwater Impacts	$10,000-$20,000	Enrollee or Coalition must submit a determination of parcels that may be causing or contributing to exceedance of Receiving Water Limitations in groundwater monitoring well.

I. Enforcement for Noncompliance

156) It is the policy of the State Water Board that every violation results in the appropriate enforcement response consistent with the priority of the violation established in accordance with the State Water Board Water Quality Enforcement

Policy. This Policy acknowledges that enforcement prioritization enhances the Water Boards' ability to leverage their scarce enforcement resources and to achieve the general deterrence needed to encourage the regulated community to anticipate, identify, and correct violations. To that end, the Water Boards rank violations, then prioritize cases for discretionary enforcement action to ensure the most efficient and effective use of available resources.

157) The first step in enforcement prioritization is to determine the relative significance of each violation or series of violations at a particular facility. Significance should be determined by analyzing the severity of impacts to beneficial uses, the level of disregard for regulatory program requirements, and deviation from applicable water quality control plan standards or permit or order conditions. Class A priority violations are those violations that potentially pose an immediate and substantial threat to beneficial uses and/or that have the potential to cause significant detrimental impacts individually or cumulatively to human health or the environment.

158) The second step in enforcement prioritization involves establishing case priorities for discretionary enforcement actions against specific individual entities, and determining the appropriate remedial tool. Discharges identified as Class A will be further analyzed for the extent of impact to beneficial uses when Regional Water Boards prioritize cases and determine whether and how to proceed with enforcement.

The State Water Board Water Quality Enforcement Policy re-affirms the principle of progressive enforcement. Progressive enforcement is an escalating series of actions that allows for the efficient and effective use of enforcement resources to: (1) assist cooperative Enrollees in achieving compliance; (2) compel compliance for repeat violations and recalcitrant violators; and (3) provide a disincentive for noncompliance. Progressive enforcement may begin with notification of violations and compliance assistance, followed by enforcement orders compelling compliance, culminating in a complaint for civil liabilities. Progressive enforcement is not appropriate in all circumstances and is not considered a requirement when swift or immediate enforcement is needed or justified to address a particular violation.

159) Any instance of noncompliance with this Order constitutes a violation of the Water Code. Such noncompliance is grounds for enforcement action, and/or termination of coverage for waste discharges under this Order, subjecting the Enrollee to enforcement under the Water Code for further discharges of waste to surface or groundwater. Possible violations of Water Code section 13260 include failure to obtain required regulatory coverage. Possible violations of this Order include but are not limited to: failure to implement Order requirements; failure to implement adaptive management; failure to comply with receiving water limitations within the discrete time schedule; falsifying information or intentionally withholding information

required by applicable laws, regulations, or an enforcement order; failure to monitor or provide complete and accurate information as required; failure to pay annual water quality fees; or failure to submit required reports on time.

J. General Findings

160) Failure to prevent conditions that create or threaten to create pollution or nuisance will be sufficient reason to modify, revoke, or enforce this Order, as well as prohibit further discharge.

161) Water Code section 13260 subdivision (d) requires persons subject to waste discharge requirements to pay any annual fee established by the State Water Board.

162) The Executive Officer may make non-substantive changes to this Order to correct typographical errors or to maintain consistency within this Order or between the Order and its Attachments, e.g., to conform changes made during this Order development process that were inadvertently not carried through this entire Order. The Board will provide public notice of the non-substantive changes.

163) The Findings of this Order and the administrative record of the North Coast Water Board relevant to the General Waste Discharge Requirements for Lily Bulb Cultivation, were considered in establishing these waste discharge requirements.

II. Requirements

IT IS HERBY ORDERED that pursuant to Water Code sections 13260, 13263, and 13267, the Enrollee, its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the Water Code and regulations adopted hereunder, shall comply with the following:

Enrollees shall comply with all prohibitions, specifications, provisions, and other requirements described below unless otherwise noted.

A. Coverage Requirements

Requirements for Coverage

1) These General WDRs apply to discharges or potential discharges of waste from Commercial Lily Bulb Operations in the Smith River Plain (defined as the Smith River Hydrologic Subarea and the coastal terraces between Pyramid Point and the Oregon border) as described in Section I: Findings. Owners and/or operators of Commercial Lily Bulb Operations in the Smith River Plain are required to seek coverage under this Order.

2) An Enrollee may obtain coverage under this Order either individually or by enrolling in an approved Coalition. By joining a Coalition, the Enrollee agrees to be represented by the Coalition. Any Order requirements not fulfilled by the Coalition are the responsibility of the Enrollee. Consistent with the Water Board's Policy for Implementation and Enforcement of the NPS Policy, Enrollees are ultimately responsible for Order compliance, independent of the status of compliance measures being taken by Coalitions.

Obtaining Coverage and Electronic Notice of Intent

3) Enrollment in this Order requires the submittal of the electronic Notice of Intent (eNOI) (see Attachment E) pursuant to Water Code section 13260. Submittal of all other technical reports pursuant to this Order is required pursuant to Water Code section 13267. Failure to submit technical reports or the attachments in accordance with the time frames established by this Order, applicable Monitoring and Reporting Program (MRP) documents, or failure to submit a complete technical report (i.e., of sufficient technical quality to be acceptable to the Executive Officer); may subject the Enrollee to enforcement action pursuant to Water Code sections 13261, 13268, or 13350. Enrollees and Coalitions must submit technical reports in the format specified by the Executive Officer.

4) To obtain coverage under these General WDRs, Enrollees must submit an eNOI form with all required information including but not limited to: Assessor Parcel Numbers (APNs) covered by enrollment; Landowner(s); Operator(s); Contact

information; and Coalition membership, if applicable.

5) eNOIs shall be updated within 30 days of a change in property ownership, Enrollee contact information, email contact information, or change in the parcels farmed by an Enrollee.

6) Property owners or operators shall complete an eNOI and enroll in the Order either individually or through an approved Coalition before **#DATE**. If the North Coast Water Board determines that coverage under this Order is not appropriate for any property owner or operator, the Executive Officer will inform the party in writing and may request that the party submit a Report of Waste Discharge (ROWD) to obtain an individual permit for the discharge of waste.

7) Coverage under this Order is not transferable to any person except after the completion of a new eNOI and submittal to the North Coast Water Board, and written approval by the North Coast Water Board's Executive Officer.

8) This Order regulates both landowners and operators but does not require enrollment by both parties. If the Enrollee is not the landowner, the Enrollee shall provide written notice of the Order and its requirements to any landowner whose parcel is covered by this Order. Both landowners and operators are responsible for complying with the requirements of this Order, regardless of whether the landowner or the operator is the enrolled party.

Termination of Coverage

9) Enrollees may terminate coverage under this Order by providing a 30-day written notice to the North Coast Water Board's Executive Officer and, if applicable, notice to the Coalition. At a minimum, the written notice must include the reason for terminating coverage (e.g., transfer of ownership, Enrollee applied for and obtained individual WDRs, discharge was discontinued, etc.). The Enrollee shall continue to comply with this Order until the North Coast Water Board notifies the Enrollee in writing that coverage has been terminated. Termination of coverage must occur prior to **July 1st** of each year to avoid billing in the next fiscal year.

10) For Enrollees enrolled through a Coalition, coverage under this Order is automatically terminated if confirmation of membership in the Coalition is not received from the Coalition during the annual Participant List submittal required by Attachment A: MRP, or if the Coalition indicates that the Enrollee is no longer enrolled through the Coalition. To obtain individual coverage, the Enrollee shall re-submit an eNOI.

11) Any instance of noncompliance with this Order is grounds for enforcement action, and/or termination of coverage for waste discharges under this Order, subjecting the Enrollee to enforcement under the Water Code for subsequent discharges of

waste to surface or groundwater.

Fees

12) Enrollees shall pay an annual water quality fee to the State Water Board in compliance with the WDRs fee schedule set forth in California Code of Regulations, title 23, section 2200.6. The Coalition is responsible for collecting these fees from their enrolled members and submitting fees to the State Water Board.

13) A Coalition may require its enrolled Members to pay any relevant fees necessary to comply with monitoring and reporting conditions of this Order or comply with monitoring and reporting requirements individually.

B. Prohibitions

1) Discharge of waste from Commercial Lily Bulb Operations in a manner or location other than that described in the Findings of the Order or the Notice of Applicability (NOA) is prohibited.

2) Discharge of waste classified as “hazardous,” as defined in California Code of Regulations, title 23, section 2521, or classified as “designated,” as defined in Water Code section 13173, is prohibited.

3) The discharge of waste (e.g., fertilizers, fumigants, pesticides) into groundwater via backflow through a water supply well or down a groundwater well casing is prohibited.

4) Discharge of debris, soil, silt, sand, bark, plant waste, sawdust, rubbish, refuse, oil or petroleum products, or other organic/earthen material or solid waste from any Commercial Lily Bulb Operation in quantities that are deleterious to beneficial uses or that violate Receiving Water Limitations is prohibited. Additionally, none of the materials listed above shall be stockpiled within the Streamside Area, or where wastes could be discharged into surface waters.

5) The use of soil amendments containing septage, liquid waste oil, grease, hazardous waste, or municipal solid waste, except for biodegradable waste meeting the definition of “compost” as defined in Public Resources Code section 40116 is prohibited.

C. Receiving Water Limitations

1) Wastes discharged from Commercial Lily Bulb Operations in the Smith River Plain, including sediment, pesticides, and nutrients, shall not cause or contribute to an exceedance of applicable water quality objectives for surface waters or groundwater, unreasonably affect applicable beneficial uses, or cause or contribute

to a condition of pollution, contamination, or nuisance (as defined in Water Code §13050). Applicable water quality objectives include but are not limited to objectives for chemical constituents, including promulgated maximum contaminant levels (MCLs), pH, sediment, turbidity, and narrative objectives for pesticide and toxicity[54]. The Basin Plan narrative water quality objectives for toxicity and pesticides are implemented through numeric interpretations established by the Water Quality Benchmarks for surface water and groundwater set forth in Tables I.3 and I.4 of the Findings.

2) Receiving Water Limitations are effective immediately except where an Enrollee is implementing an approved Water Quality Management Plan under the Adaptive Management Program for a specified parameter in accordance with an approved time schedule authorized pursuant to Section H of this Order.

D. Management Practice Requirements

1) Enrollees shall implement Management Practices to prevent, minimize, or eliminate the discharge of waste to surface waters and groundwater and to achieve compliance with Receiving Water Limitations of this Order (Section II.C). Management Practices may be implemented on an individual farm, Enrollee, or Field[55] basis, or collectively over multiple farms or Fields to serve multiple Enrollees discharging to a common location.

2) All Enrollees shall, at a minimum, implement Management Practices necessary to:

    a) Prevent, minimize, or eliminate erosion and sediment discharge from all farm areas and appurtenant roads;

    b) Prevent, minimize or eliminate the discharge of all agricultural [56] pollutants to surface waters and groundwater;

    c) Prevent, minimize, or eliminate overapplication of nitrogen and the percolation of nitrogen into groundwater;

    d) Protect wellheads from surface water intrusion; and

    e) Implement proper handling, storage, disposal, and management of fertilizers, fumigants, pesticides, herbicides, rodenticides, and other chemicals.

    Enrollees may refer to Attachment B: Management Practices for a representative menu of applicable Management Practices to achieve the water quality management goals outlined above. Alternatively, Enrollees may propose and implement Management Practices that are effective at addressing the water quality management goals listed above.

3) To eliminate, minimize, or reduce the discharge of sediment, Enrollees shall prioritize all Controllable Sediment Discharge Sources[57] for implementation of practices, maintenance, and repair.

4) All Management Practices shall be properly designed, installed[58], maintained, and promptly repaired to prevent, minimize, or eliminate the discharge of waste. Maintenance of management practices shall include their periodic inspection to evaluate effectiveness and prioritize repair.

5) When effectiveness evaluation, monitoring data, or inspections indicate that the implemented management practices have not been effective in preventing discharges from causing or contributing to exceedances of Water Quality Benchmarks or from violating Receiving Water Limitations in Section II.C, Enrollees must improve or implement additional management practices, as specified in Section II.H Adaptive Management.

6) Enrollees shall comply with applicable mitigation measures in Attachment E: CEQA Mitigation Measures during construction of Ground-Disturbing Management Practices. These mitigation measures shall be reported in accordance with the reporting requirements of Attachment A: Monitoring and Reporting Program.

7) Enrollees shall report all management practices annually in a Farm Evaluation in accordance with Attachment A: Monitoring and Reporting Program. Enrollees shall annually certify in their Farm Evaluation that maintenance and periodic inspection of management practices were completed. A copy of the Farm Evaluation shall be maintained at the Enrollee's primary place of business and shall be submitted to North Coast Water Board staff on request. The Coalition is required to submit Farm Evaluations to the North Coast Water Board on request.

E. Streamside Area Requirements

1) For the purposes of this Order, a Streamside Area is comprised of two contiguous components: a Riparian Vegetation Area and a Vegetated Buffer in which different requirements are applied. A Streamside Area is defined as the area between the waterside edge of vegetation at ground level[59] and where the field-side edge of the Vegetated Buffer meets the Farm Area. The Riparian Vegetation Area extends from the waterside edge of vegetation to the Vegetated Buffer in Perennial and Ephemeral/Intermittent Streams. The Vegetated Buffer is measured from the Riparian Vegetation Area to the Farm Area along Perennial and Ephemeral/Intermittent Streams, and from the waterside edge of vegetation in Hydrologically Connected Undesignated Channels, Unfarmed Wetlands, and Hydrologically Connected Lakes, Ponds, or On-Stream Reservoirs. Enrollees may refer to Section IV. of Attachment D: Methodologies and Procedures for an example of a Streamside Area.

2) Enrollees shall refer to Table II.1 in determining widths for implementation of Streamside Area management practices.

Table II.1: Streamside Area Minimum Horizontal Width (feet) as Measured from Waterside Edge of Vegetation

Streamside Area component	Perennial Stream	Ephemeral/ Intermittent Stream	Hydrologically Connected Undesignated Channel	Unfarmed Wetland[60]	Hydrologically-Connected[61] Lake, Pond, or On-Stream Reservoir
Riparian Vegetation Area	25	15	N/A	N/A	N/A
Vegetated Buffer	25	10	10	50	50
Total Streamside Area width	50	25	10	50	50

Riparian Vegetation Requirements

3) Enrollees shall implement the following management practices in the Riparian Vegetation Area of all Streamside Areas:

   a) Allow the natural establishment and abundance of native riparian vegetation to minimize or prevent discharge of sediment, nutrients, and excess temperature to surface water.

   b) Existing riparian vegetation may not be removed for activities appurtenant to the lily bulb operation except for: (1) restoration and planting of vegetation that is native to California and naturally occurs in the local HUC-8 watershed; (2) work necessary for protection of public health or safety, including fire fuel management as required by California Fire Code section 304.1.2. and/or local ordinances; (3) streamside area restoration outside of jurisdictional waters of the United States or waters of the State[62], or (4) removal of riparian vegetation as part of necessary maintenance of existing watercourse crossings[63] and linear utilities, control of invasive species, and permitted surface water diversions[64]; or (5) other restoration and/or maintenance projects subject to the prior approval of the Executive Officer.

   c) Allow essential functions supporting beneficial uses such as sediment

filtering, woody debris recruitment, streambank stabilization, nutrient cycling, pollutant filtering, and shading (e.g., to achieve site potential effective shade[65]).

Vegetated Buffer Requirements

4) Enrollees shall install and/or maintain[66] Vegetated Buffers to minimize or prevent discharges of sediment and nutrients to surface waters. Vegetated buffers shall be the minimum width (feet) listed in Table 5 and shall be measured from the Riparian Vegetation Area to the Farm Area along Perennial and Ephemeral/Intermittent Streams, and from the Waterside edge of vegetation to the Farm Area in Hydrologically Connected Undesignated Channels, Unfarmed Wetlands, and Hydrologically Connected Lakes, Ponds, or On-Stream Reservoirs.

5) The following activities are not allowed within a Vegetated Buffer:

    a) Construction and/or installation of new permanent structures appurtenant to lily bulb operations. (e.g., agricultural roads and buildings). Maintenance and/or reconstruction of existing permanent structures within the existing footprint is allowed.

    b) Storage of chemicals, oil, or petroleum products.

    c) Placement of construction materials, trash rubbish, refuse, plant waste, or other organic or earthen material or solid waste.

6) Vegetated buffers may be used for vehicle, or equipment use and turn around provided Enrollees manage and maintain a minimum of 90 percent vegetated cover on Vegetated Buffers between **November 1- May 1** of each year to minimize, control, or prevent discharges of sediment, nutrients, and pesticides to surface waters.

Riparian Vegetation Area Restoration Alternative

7) In lieu of meeting the Riparian Vegetation Area minimum widths for Perennial and Ephemeral/Intermittent streams in Table 5, an Enrollee may mitigate the difference in area available for natural succession of riparian vegetation between riparian vegetation existing at the date of Order adoption and Table 5 requirements. Mitigation must be accomplished through restoration and protection of native riparian vegetation at another location within the same sub-watershed (HUC-12) with similar or greater ecological value and function.

8) The proposed Restoration Area (length and width) shall be no less than 200 percent of the difference between existing Riparian Vegetation Area and Table 5 requirements. The proposed Restoration Area shall be placed into a conservation easement with sufficient financial resources to fund 20 years of riparian vegetation

maintenance and replacement of vegetation that does not survive.

9) Enrollees choosing this option shall implement restoration and protection within the Restoration Area(s) and have the Restoration Area(s) placed within a conservation easement within five years of the date of Order adoption.

10) Enrollees selecting a Streamside Area Restoration Alternative must submit a proposal to the Executive Officer for review and approval by **#DATE.** The proposal must include all information necessary to indicate that the proposed Restoration Alternative will satisfy the above requirements. Restoration projects that discharge materials or pollutants into waters of the state must be authorized by the North Coast Water Board prior to implementation through an applicable permitting program (e.g., 401 Water Quality Certification).

F. Compliance Education

1) Enrollees shall participate in compliance education[67] annually that focuses on: (1) actions necessary to attain compliance with the water quality goals of this Order; and (2) practices to prevent or minimize the discharge of sediment, pesticides, and nutrients to surface water and groundwater. Enrollees shall document annual compliance education in the Annual Compliance Form as specified in Attachment A.

G. Monitoring and Reporting Requirements

1) Enrollees shall comply with all monitoring requirements specified in Attachment A: Monitoring and Reporting Program (MRP). Required monitoring includes Drinking Water Supply Well Monitoring, Surface Water Monitoring, and Groundwater Trend Monitoring, as applicable. Monitoring may be conducted at the individual or Coalition level as applicable, and shall be conducted in accordance with the methods, frequencies, and locations specified in the MRP.

2) Enrollees shall comply with all reporting requirements specified in Attachment A: Monitoring and Reporting Program (MRP). Required reporting includes submission of an Annual Compliance Report and a 5-year Water Quality Trend Monitoring Report. Enrollees participating in an approved Coalition may satisfy reporting obligations through the Coalition, which shall submit required reports on behalf of its members and may elect to submit a Groundwater Protection Plan in accordance with Section C.V of the MRP.

3) The North Coast Water Board's Executive Officer may require the Coalition to provide direct reporting data for its Enrollee members upon request. The Coalition shall provide this information within 30 days of the request.

H. Adaptive Management Program

Surface Water Adaptive Management Program

1) The Adaptive Management Program for surface water establishes an iterative process to ensure surface water quality conditions achieve Receiving Water Limitations (Section II.C of this Order) within a certain time schedule. Adaptive Management requirements apply to lily bulb Fields within a crop production cycle, defined as any period in which the Field is not in permanent pasture (≥90 percent ground cover). A crop production cycle includes field preparation, bulb growing, harvest, and the post-harvest period until permanent ground cover is re-established.

2) Field(s) may be temporarily exempted from the Adaptive Management Program requirements in the years that they maintain 90% or greater planted ground cover between **November 1-May 1** of each year (e.g., Fields planted to hay crops, forage, fallowed, or used for grazing) and the pesticides for which Adaptive Management was triggered are not applied. Applicable Field(s) shall be subject to Adaptive Management in the next year they experience ground disturbing activities, get planted to lily bulbs, or apply the applicable pesticide(s).

3) At any point during implementation of the Adaptive Management Program, an Enrollee may elect to implement an individual Sampling Plan to directly demonstrate that applicable Water Quality Benchmark(s) identified in Table A.4 of Attachment A: MRP for the exceeded parameter are being met at Edge-of-Field Discharge Point(s) when the Field is next planted to lily bulbs to exempt that Field from Adaptive Management requirements. If this option is selected, the Enrollee shall follow all monitoring and reporting requirements as outlined in Section IV.A of Attachment A: MRP.

4) The Executive Officer may require any Enrollee or group of Enrollees to enter, or stay in, the Adaptive Management Program where there is evidence that a Field is threatening to discharge waste. Upon notification by the Executive Officer, Enrollee(s) shall follow the general Adaptive Management Program outlined below.

5) The Adaptive Management Program is activated when a Water Quality Benchmark as identified in Table A.4 of Attachment A: Monitoring and Reporting Program (MRP) is exceeded at a downstream monitoring station. Table A.3 and Figure A.1 in Attachment A: MRP identify the tributary area associated with each downstream monitoring station. Upon activation or continuation of the Adaptive Management Program, all Fields planted to lily bulbs at the time the sample was collected and located within the tributary area of the affected monitoring station shall be subject to the Adaptive Management Program.

6) Samples collected from monitoring stations in the tributary watersheds listed in

Table II.2 below have already exceeded Water Quality Benchmarks as documented in the 2021–2024 Smith River Plain Surface Water Monitoring Study and reported in the 2025 SWAMP Report (see Findings #56-59). All Fields that drain to the receiving waters identified in Table II.2 shall enter **Tier 1 Adaptive Management** for the parameter(s) listed upon enrollment in this Order. Enrollees shall comply with Tier 1 Adaptive Management requirements during the first year each applicable Field is planted to lily bulbs.

Table II.2: Tributaries in Adaptive Management Upon Order Enrollment

Receiving Water/Watershed	**Parameter(s)**
Delilah Creek	Imidacloprid, Dissolved Copper
Ritmer Creek	Dissolved Copper
Morrison Creek	Dissolved Copper
Mello Creek	Dissolved Copper

7) Receiving Water Limitations are effective immediately except where an Enrollee is implementing an approved Water Quality Management Plan under the Adaptive Management Program. The Adaptive Management Program functions as a time schedule ending with Tier 2 implementation (described below), after which continued Water Quality Benchmark exceedances may constitute a violation of Receiving Water Limitations of this Order.

8) Enrollees shall implement the tiered Adaptive Management framework described below and in Table II.3 for each parameter that exceeds a Water Quality Benchmark. Upon an initial Benchmark exceedance, applicable Fields shall enter Tier 1 Adaptive Management and be subject to Tier 1 requirements during the next crop production cycle. If no Benchmark exceedance occurs during a monitoring year in which the Field is planted to lily bulbs, the Field shall no longer be subject to the Adaptive Management schedule; however, Tier 1 management practices shall be maintained in all subsequent crop production cycles.

   If, at any time while a Field is subject to Tier 1 requirements, an additional Water Quality Benchmark exceedance occurs at the downstream monitoring station for the same parameter, the Field shall be subject to Tier 2 requirements during the next crop production cycle. Tier 2 requirements shall be maintained in all subsequent crop production cycles. Any Water Quality Benchmark exceedance occurring after Tier 2 requirements have been implemented may constitute a violation of Receiving Water Limitations of this Order. See Attachment D:

Methodologies and Procedures for an Adaptive Management flowchart that describes this process.

Table II.3: Adaptive Management Tier Requirements for Surface Water

Adaptive Management Tier	**Tier Requirements**
Tier 1: Initial Water Quality Benchmark Exceedance	**Option 1 — Grower-Prepared Water Quality Management Plan (WQMP)** The Enrollee develops and implements a WQMP that incorporates **at least one** of the following practices on each Field covered by the plan: • Treat-and-Control Management Practices • Watercourse Setback • Pesticide Application Performance Standard **Option 2 — Certified WQMP** A **Qualified Professional** designs and certifies the WQMP, including a **quantitative demonstration** that the practices implemented on each Field will be sufficient to ensure that discharges from the Field do not exceed Receiving Water Limitations at the downstream monitoring location.
Tier 2: Subsequent Water Quality Benchmark Exceedance	**Certified WQMP**

Grower-Prepared WQMP

9) Enrollees may choose, as one of two Tier 1 Adaptive Management compliance options, to develop and implement a Grower-prepared WQMP. The Grower-prepared WQMP must be submitted by **January 1st** to the Executive Officer for review and approval in the calendar year that the Field will be entering its next crop production cycle[68]. Once approved, the Grower-prepared WQMP must be implemented in the year that the Field is planted to lily bulbs. At a minimum, the Grower-prepared WQMP shall identify the pollutant exceeding the Receiving Water Limitations in Section II. C of this Order and include the following:

    a) Field Map: A map of the Field(s) with all irrigation and stormwater discharge

locations labeled. The WQMP may cover all Fields or be submitted for individual Fields. The Field Map shall identify where practices will be implemented in each Field.

b) Practices Identified: For each Field covered by the Grower-prepared WQMP, the Enrollee shall identify and implement at least **one** of the following management practices:

i) **Treat and Control Management Practices**
Implement Management Practice(s) that will minimize or eliminate the discharge of the exceeded parameter from the Field. Tier 1 Management Practices treat[69], divert, infiltrate, reuse, contain, retain, or reduce the volume of storm water runoff from a given Field.

ii) **Watercourse Setback**
Fields that are hydrologically connected to receiving waters may implement a Watercourse Setback[70]. The setback shall be measured from the watercourse at the waterside edge of vegetation at ground level[71] and shall meet the minimum width to the planted area of the lily bulb Field that is designated in Table II.4 by watercourse type. If selected, this setback must be implemented at all edges of a planted Field that drain to the watercourse. The Watercourse Setback shall maintain at least 90 percent ground cover between **November 1 and May 1** and follow all applicable design and maintenance standards consistent with NRCS practices for conservation cover and critical area planting[72].

Table II.4. Required Widths of Vegetated Watercourse Setback by Watercourse type

Perennial Stream	Ephemeral/ Intermittent Stream	Hydrologically Connected Undesignated Channel
100 ft	100 ft	30 ft

iii) **Attainment of Active Ingredient Application Performance Standard.**
Enrollees may refer to Table II.5 to meet tributary- and parameter-specific performance standards for active ingredient application amount. The attainment of the active ingredient application rate must be met at the tributary level. If the Enrollee elects this option for Adaptive Management Compliance, the application amount shall be reported in the Annual Report (See Attachment A: MRP). Where multiple growers are applying pesticides within a given tributary, the performance

standard application amount is prorated based on total lily bulb acres cultivated.

Table II.5: Annual Active Ingredient Application Amount (lbs./year) Performance Standard by Tributary

Active Ingredient and Normalized Rate	Ritmer Creek	Delilah Creek	Rowdy Creek	Unnamed Creek	Morrison Creek	Mello Creek	Kamph Park Creek
Elemental Copper (0.5 lbs./acre/year)	376	447	10877	87	798	203	70
Imidacloprid (0.01 lbs./acre/year)	7.5	89	22	1.7	16	4	1.4
Diuron (0.05 lbs./acre/year)	38	45	1088	9	68	20	7
Ethoprop (0.3 lbs./acre/year)	226	268	6526	52	479	122	42

Certified WQMP for Surface Water

10) The Certified WQMP is developed as an Adaptive Management response to results from Surface Water Monitoring (as described in Attachment A: MRP). The Certified WQMP includes management practices designed to address specific constituents of concern in a manner that accounts for the characteristics and conditions of each individual lily bulb Field or operation. It provides a quantitative demonstration that the management practices implemented will result in discharges, or the lack thereof, that achieve applicable Water Quality Benchmarks in surface waters. The Certified WQMP may be submitted individually or submitted by the Coalition on behalf of multiple Enrollees.

11) Each Certified WQMP shall be prepared under the direction of, and certified by, a Qualified Professional. The Certified WQMP shall be submitted by January 1 to the Executive Officer for review and approval in the year that the applicable Field(s) is entering its next crop production cycle.

12) The WQMP shall describe and provide a schedule for the implementation of management practices to meet the Receiving Water Limitations of this Order.

13) At a minimum, the WQMP shall identify the pollutant exceeding the applicable Water Quality Benchmark and include:

a) Field Map: A map of the Field(s) with all irrigation and stormwater discharge locations labeled The Surface Water WQMP may cover multiple Fields or individual Fields, as applicable.

b) Site Analysis: A description of the average frequency of crop rotation and other crop(s) or uses of Field(s) when not planted to lily bulbs and all management practices being implemented on the site to prevent, minimize, or eliminate the discharge of the exceeded constituent.

c) Adaptive Management: All the management practices that will be implemented on the Field(s) in the next year it is planted to lily bulbs. Management practices must be improved in each subsequent year adaptive management is required.

d) Quantitative Demonstration: The assessment shall evaluate the location, size, and pollutant reduction capacity or volume retention capacity of each management practice for the 1-inch 24-hour storm under wet antecedent moisture conditions (AMC III[73]). The quantitative demonstration shall be supported by water quality data collected in the field that directly reflects the performance of the implemented management practices under actual operating conditions. Supporting water quality data shall not rely solely on literature reviews, modeling assumptions, or generalized performance estimates, but must include monitoring results sufficient to demonstrated that the implemented practices are effective at reducing pollutant loads and achieving water quality benchmarks. Edge-of-Field sampling may be used but is not required. For example, in lieu of Edge-of-Eield sampling, a Surface Water WQMP may include monitoring results from receiving waters located upstream and downstream of the lily bulb Field (monitoring locations subject to approval by the Executive Officer).

e) Effectiveness: The WQMP shall include an effectiveness monitoring plan to ensure the proper maintenance and continued performance of all existing and future management practices.

f) Schedule of Implementation: The WQMP shall include a schedule of management practice implementation not to exceed two crop production cycles of the Field, unless otherwise approved by the Executive Officer.

14) The Certified WQMP must be prepared and certified in one of the following ways:

a) The WQMP is developed and certified by a Qualified Professional and submitted as part of the Annual Compliance Report to the North Coast Water Board; or

b) The WQMP is prepared and certified in an alternative manner to a Qualified

Professional and approved by the Executive Officer. Such approval will be provided based on the Executive Officer's determination that the alternative method for preparing the WQMP meets the objectives and requirements of this Order.

15) The Certified WQMP shall be submitted to the Executive Officer for review and approval. Upon approval, the Enrollee shall implement the WQMP on a continuous basis. The WQMP shall be updated if there is a change to site configuration or management practices. The Executive Officer may require that the WQMP be updated at five-year intervals and shall notify the Enrollee at least one year prior to the end of each five-year period if an update is required. Any required update shall be certified by a Qualified Professional and shall describe all additional management practices implemented to achieve Receiving Water Limitations in either surface waters or groundwater.

Groundwater Adaptive Management

16) The Adaptive Management Program is activated for impacts to groundwater quality based on the following conditions:

    a) A Water Quality Benchmark indicated in Table A.7 of Attachment A: Monitoring and Reporting Program is exceeded in either a Groundwater Trend Monitoring well or a Drinking Water Supply Well; or

    b) If nitrogen Applied-to-Removed (A/R) rates in any Field exceed the township Groundwater Protection Targets (GWP Targets) in a single crop year once GWP Targets are established.

17) The Adaptive Management Program for Groundwater is implemented as described in this section and summarized in Table II.6. Enrollees shall refer to Table II.6 for a consolidated summary of program triggers, requirements, and response actions.

Table II.6: Adaptive Management Requirements for Groundwater

Adaptive Management Program Trigger	Summary of Requirements
Exceedance of Water Quality Benchmark	Step 1: Enrollee or Coalition submits a Hydrogeological Evaluation of Groundwater Impacts to identify which parcels and Enrollees are subject to the requirement to submit a WQMP for Groundwater. Step 2: Enrollee(s) must develop and implement a Water Quality Management Plan for Groundwater
Exceedance of township GWP Target	Enrollee must attend an education event, implement additional measures to reduce nitrogen application, and report on those measures. Upon repeated exceedances of the township GWP Target, the Enrollee must get an Irrigation and Nutrient Management Plan certified by a Qualified Professional.

<u>Exceedance of Water Quality Benchmark for Groundwater</u>

18) If a parameter identified in Table A.7 of Attachment A: MRP exceeds a Water Quality Benchmark, the Coalition, or the owner of the parcel on which the monitoring well is located, shall submit to the Executive Officer for review and approval a Hydrogeological Evaluation of Groundwater Impacts. The Hydrogeological Evaluation shall be prepared under the responsible charge of a hydrogeologist and shall be completed prior to the development of a Water Quality Management Plan for Groundwater.

19) At a minimum, the Hydrogeological Evaluation of Groundwater Impacts shall:

    a) Identify the monitoring well(s) with Water Quality Benchmark exceedances and describe the relevant hydrogeologic setting, including aquifer characteristics, groundwater flow direction, and hydraulic connectivity;

    b) Delineate the potential area contributing to the monitoring well exceedance, based on available hydrogeologic information and groundwater flow conditions;

    c) Identify all parcels within the contributing area that have applied the exceeded parameter within the previous five years and that may reasonably affect groundwater quality at the monitoring well; and

d) Evaluate whether the exceedance is likely attributable to current or historical agricultural practices associated with identified properties.

20) The Executive Officer shall use the Hydrogeological Evaluation of Groundwater Impacts to determine which Enrollees, as owners or operators, are required to develop and implement a Water Quality Management Plan for Groundwater in accordance with Section II.H of this Order.

21) An individual Enrollee may submit a Non-Contribution Demonstration to the Executive Officer for review and approval demonstrating that the Enrollee's Field(s) did not cause or contribute to the Water Quality Benchmark exceedance. The Non-Contribution Demonstration shall include quantitative, parameter-specific information relevant to the exceeded parameter, including, as applicable, Irrigation and Nutrient Management Plans and individual pesticide use report information, and shall be prepared under the responsible charge of a Professional Geologist or Professional Engineer.

Water Quality Management Plan (WQMP) for Groundwater

22) The Water Quality Management Plan for Groundwater requires implementation of a series of steps to achieve compliance with the Receiving Water Limitations of this Order, including defining the nature and extent of groundwater impacts, identifying sensitive receptors including agricultural and drinking water wells and interconnected surface waters, conducting continued monitoring, and implementing corrective actions where natural attenuation is not sufficient to achieve Receiving Water Limitations within a reasonable timeframe (20 years). The WQMP for Groundwater may be prepared for multiple Enrollees or individual Enrollees, as applicable.

23) Each WQMP for Groundwater shall be prepared under the direction of, and certified by, a Professional Geologist or a Professional Engineer. The WQMP for Groundwater shall be submitted by **January 1** to the Executive Officer for review and approval in the year that the applicable Field(s) is entering its next crop production cycle.

24) At a minimum, the WQMP for Groundwater shall include the following:

a) The WQMP shall describe the nature, extent, and mobility of constituent(s) exceeding Water Quality Benchmark(s) in groundwater and identify all current and reasonably anticipated sensitive receptors, including agricultural or drinking water wells, and surface water bodies.

b) The WQMP must include a map of all the Field(s) identified in the Hydrogeological Evaluation for Groundwater that are covered by the WQMP with all sensitive receptors labeled.

c) The WQMP shall delineate the extent of impact with a hydrogeologic investigation sufficient to characterize the impacted area and potential migration pathways.

d) A monitoring network shall be established within the extent of impact and maintained to evaluate groundwater quality conditions and compliance with Receiving Water Limitations, as demonstrated by comparison to the applicable Water Quality Benchmark.

e) If groundwater quality is demonstrated to be stable or naturally attenuating toward Receiving Water Limitations within a reasonable timeframe (i.e., 20 years), the Groundwater WQMP may rely on monitoring and attenuation but shall continue until compliance is documented.

f) If Water Quality Benchmarks are exceeded and are not expected to attenuate within a reasonable timeframe (e.g., in the case of continuing application of the constituent), the Groundwater WQMP shall propose and implement corrective actions to reduce or control sources and prevent further impact to sensitive receptors, with management practice implementation and monitoring continuing until Receiving Water Limitations are achieved, unless otherwise approved by the Executive Officer.

g) The Groundwater WQMP shall include a schedule of implementation not to exceed 20 years unless otherwise approved by the Executive Officer.

Exceedance of GWP Target in a Township

25) If nitrogen Applied-to-Removed (A/R) rates in any Field exceed the township GWP Target in a single crop year, those Fields are subject to Adaptive Management focused on irrigation and nutrient management practices. Enrollees with Fields that exceed the township GWP Target shall:

a) Attend at least one compliance education event addressing applicable nutrient management practices;

b) Implement additional measures to reduce nitrogen application and minimize potential leaching to groundwater[74]; and

c) Report the management improvements in the Irrigation and Nutrient Management Plan (INMP) for the next crop year in which the Field is planted to lily bulbs.

26) If an Enrollee exceeds the township GWP Target for a Field planted to lily bulbs in two consecutive lily bulb production cycles, the Enrollee shall develop, implement, and submit an Irrigation and Nutrient Management Plan (INMP) in accordance with Section V of the MRP that is certified by a Qualified Professional. The Enrollee

shall have their INMP certified by a Qualified Professional each year, until compliance with the GWP Target is achieved.

I. Provisions

Noncompliance

1) Enrollees shall comply with all conditions of this Order. Noncompliance is a violation of the Porter-Cologne Water Quality Control Act (Water Code, § 13000 et seq.) and grounds for: (1) enforcement action; (2) termination, revocation and reissuance, or modification of these waste discharge requirements; or (3) denial of an Order renewal application, or a combination thereof. Coalition(s) shall also comply with all relevant conditions of this Order on behalf of the Enrollees enrolled through their program(s).

2) Enrollees shall report any noncompliance that may endanger human health or the environment. Information shall be provided orally to the North Coast Water Board office and the Office of Emergency Services within twenty-four (24) hours of when the Enrollee becomes aware of the incident. A written report shall also be provided within five business days of the time that the Enrollee becomes aware of the incident. The written report shall contain a description of the noncompliance and its cause, the period of noncompliance, the anticipated time to achieve full compliance, and the steps taken or planned, to reduce, eliminate, and prevent recurrence of the noncompliance.

Enforcement

3) All Enrollees, regardless of whether they enroll individually or through a Coalition and any non-Enrollee owner or operator, bear ultimate responsibility for complying with this Order. The North Coast Water Board reserves the right to take any enforcement action authorized by law. Accordingly, failure to comply with any provisions of this Order may subject Enrollees to enforcement action. Such actions include, but are not limited to, the assessment of administrative civil liability pursuant to Water Code sections 13323, 13268, and 13350; a Time Schedule Order issued pursuant to Water Code section 13300 or 13308; issuance of a Cease-and-Desist Order pursuant to Water Code section 13301; Cleanup and Abatement Order pursuant to Water Code section 13304; or referral to the California Attorney General for recovery of judicial civil liability. Enrollees shall take all reasonable steps to minimize or prevent any discharge in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment.

4) For Coalition(s), failure to comply with the applicable terms and conditions of this Order or the Coalition requirements in Attachment C may result in revocation of approval to act as a Coalition or any other remedy provided by law. Affected

Enrollees would be required to join an approved Coalition, meet requirements for Enrollees not represented by a Coalition, or obtain coverage under other applicable general or individual WDRs.

Inspection and Entry

5) Consistent with Water Code section 13267, subdivision (c), Enrollees and Coalition(s) shall allow the North Coast Water Board, or an authorized representative, upon presentation of credentials and other documents as may be required by law, to:

   a) Enter the premises regulated by this Order, or the place where records are kept under the conditions of this Order,

   b) Have access to and copy records kept under the conditions of this Order,

   c) Inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and

   d) Sample or monitor for the purpose of ensuring compliance with this Order, or as otherwise authorized by the Water Code, any substances or parameters at locations regulated under this Order.

Records Retention

6) Enrollees and Coalitions, as appropriate, shall retain copies of all reports required by this Order and the associated MRP. Records shall be maintained for a minimum of ten years from the date of the sample, measurement, report, or application. Records may be maintained electronically, and the Coalition must store backup files in a secure, offsite location managed by an independent third-party entity. This period may be extended during the course of any unresolved litigation or when requested by the North Coast Water Board's Executive Officer.

7) Enrollees and Coalitions shall provide copies of any or all records when requested by North Coast Water Board staff. Electronic submittals are acceptable.

Electronic Reporting

8) Enrollees and Coalition(s), as appropriate, shall submit reports and information required for North Coast Water Board Executive Officer approval under this Order in an electronic format[75] via email to NorthCoast@Waterboards.ca.gov.

Claims for Exemption from Public Disclosure

9) If the Coalition and/or an Enrollee asserts that all or a portion of a report submitted

pursuant to this Order is subject to an exemption from public disclosure (e.g., due to proprietary or trade secret information), the Coalition and/or Enrollee must provide an explanation of how those portions of the reports are exempt from public disclosure. The Coalition and/or Enrollee must clearly indicate on the cover of the report (typically an electronic submittal) that all or a portion of the report is exempt from public disclosure, submit a complete report with those portions that are asserted to be exempt in redacted form, submit separately (in a separate electronic file) unredacted pages (to be maintained separately by staff). North Coast Water Board staff will determine whether any such report or portion of a report qualifies for an exemption from public disclosure. If staff disagrees with the asserted exemption from public disclosure, staff will notify the Enrollee prior to making such report or portions of such report available for public inspection.

Signature and Certification

10) All documents and reports requested herein shall be signed and dated by a duly authorized representative and shall contain a statement by the Enrollee, or as appropriate by an authorized representative of the Enrollee (e.g., Third-Party representative), certifying under penalty of perjury under the laws of the State of California, that the report is true, complete, and accurate. The document and/or report shall be submitted under the title: “General Waste Discharge Requirements for Commercial Lily Bulb Operations in the Smith River Plain Hydrologic Subarea.”

Violation of Law and Property Rights

11) This Order does not authorize violation of any federal, state, or local laws or regulations.

12) This Order does not convey property rights of any sort, or exclusive privileges, nor does it authorize injury to private property or invasion of personal rights.

Modification, Revocation, Termination

13) This Order may be modified, revoked and reissued, or terminated. The filing of a request by an Enrollee for an Order modification, rescission, or reissuance, or an Enrollee’s notification of planned changes or anticipated noncompliance, does not stay any Order condition. Causes for modification include, but are not limited to, the violation of any term or condition contained in this Order, a material change in the character, location, or volume of discharge, a change in land application plans, or the adoption of new regulations by the State Water Board, North Coast Water Board (including revisions to the Basin Plan), or federal government.

III. Certification

I, Valerie Quinto, Executive Officer do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California North Coast Regional Water Quality Control Board, on **#DATE**.

Valerie Quinto
Executive Officer
California Water Quality Control Board,
North Coast Region

Appendix I: Acronyms, Definitions, and Endnotes
Appendix II: Figures
Attachment A: Monitoring and Reporting Program
Attachment B: Management Practices
Attachment C: Grower Coalition Requirements
Attachment D: Methodologies and Procedures
Attachment E: CEQA Mitigation Measures
Attachment F: Forms and Templates

Appendix I: Acronyms, Definitions, and Endnotes

I. Acronyms and Abbreviations

Acronym/Abbreviation	Term
Antidegradation Policy	State Water Board Resolution 68-16, the Statement of Policy with Respect to Maintaining High Quality Waters in California
Basin Plan	Water Quality Control Plan for the North Coast Basin
BLM	Biotic Ligand Model
BLM-IWQC	Biotic Ligand Model Instantaneous Water Quality Criteria
CalFIRE	California Department of Forestry and Fire Protection
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife
CDPR	California Department of Pesticide Regulation
CDPH	California Department of Public Health
CEDEN	California Environmental Data Exchange Network
CEQA	California Environmental Quality Act
C_N	Nitrogen Removal Coefficient
CSDS	Controllable Sediment Discharge Sources
CRHR	California Register of Historical Resources
CWA	Clean Water Act
DDW	State Water Board, Division of Drinking Water
DWR	Department of Water Resources
EIR	Environmental Impact Report
ESJ Order	Eastern San Joaquin Order (State Board Order WQ 2018-0002).

Acronym/Abbreviation	Term
ELAP	Environmental Laboratory Accreditation Program
Enforcement Policy	State Water Board Water Quality Enforcement Policy
eNOI	Electronic Notice of Intent
GPS	Global Positioning System
GWP	Groundwater Protection (see GWP Formula, GWP Values, GWP Targets)
HUC	Hydrologic Unit Code
ILRP	Irrigated Lands Regulatory Program
INMP	Irrigation and Nitrogen Management Plan
MCL	Maximum Contaminant Level
MDL	Method Detection Limit
mg/L	Milligrams per Liter
MRP	Monitoring and Reporting Program
NCRWQCB	North Coast Regional Water Quality Control Board
Nitrogen AR	Nitrogen Applied and Removed
NOA	Notice of Applicability
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
NPS	nonpoint source
NPS Policy	State Water Board Policy for the Implementation and Enforcement of the Nonpoint Source Pollution Control Program
NRCS	Natural Resources Conservation Service

Acronym/Abbreviation	Term
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
QAPP	Quality Assurance Project Plan
North Coast Water Board	North Coast Regional Water Quality Control Board
RFP	Request for Proposal
ROWD	Report of Waste Discharge
SGMA	Sustainable Groundwater Management Act
State Water Board	State Water Resources Control Board
SWAMP	Surface Water Ambient Monitoring Program
Temperature Policy	Policy for the Implementation of the Water Quality Objectives for Temperature
Trend Monitoring Report	Water Quality Trend Monitoring Report
µg/L	Micrograms per Liter
UCCE	University of California Cooperative Extension
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
Water Code	California Water Code
WDRs	Waste Discharge Requirements
WQMP	Water Quality Management Plan

II. Definitions

The following definitions apply to Order No. R1-202X-00XX and its associated attachments, including the MRP. The terms are arranged in alphabetical order. All other terms not explicitly defined here for the purposes of this Order, the Additional Findings and Regulatory Considerations, and the MRP have the same definitions as defined by Water Code Division 7 or are explained within the Order or MRP documents.

Abandoned Well. A well is considered “abandoned” when it has been destroyed in accordance with local and state well standards. An abandoned well is not synonymous with an “inactive well” (see also Inactive Well).

Active Well. A water well that is in operation/use.

Adaptive Management. The iterative process of evaluating monitoring results, programmatic performance, and new scientific information to guide modifications to management practices and implementation schedules, with the goal of achieving water quality objectives and protecting beneficial uses. Adaptive management relies on data collected through surface water and groundwater trend monitoring and other relevant sources of information including effectiveness of implemented management practices.

All-Season Road. An agricultural road that is part of the permanent road network and is designed for year-round use. These roads have a surface that is suitable for maintaining a stable operating surface throughout the year.

Antidegradation. The State Water Board established a policy to maintain high quality waters of the State - Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality Waters in California." Resolution No. 68-16 requires existing high-quality water to be maintained until it has been demonstrated that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of water, and will not result in water quality less than that prescribed in the policies. When authorizing the discharge of waste into waters of the state, North Coast Water Boards are required to comply with Resolution No. 68-16. Permits or regulatory orders issued by the North Coast Water Board must result in the best practicable treatment or control of the discharge necessary to assure pollution or nuisance will not occur and maintain the highest water quality consistent with maximum benefit to the people of the state. Resolution No. 68-16 has been approved by the USEPA to be consistent with the federal antidegradation policy (40 CFR 131.12).

Appurtenant. Belonging to, pertinent to, or used for the Commercial Lily Bulb Operation.

Appurtenant Field Road. An agricultural road used for Commercial Lily Bulb Operations which connects or is used to access lily bulb fields under the ownership or

control of the landowner or operator.

Authorized Representative. An individual, agency, or entity who acts on behalf of another individual, agency, or entity (such as an approved Third-Party program staff, Enrollee, or consultant retained by an approved Third-Party program acting on behalf of an individual Enrollee or the North Coast Water Board).

Basin Plan. The Basin Plan is the North Coast Region's Water Quality Control Plan. The Basin Plan describes how the quality of the surface and groundwater in the North Coast Region should be managed to provide the highest water quality reasonably possible. The Basin Plan includes beneficial uses, water quality objectives, and a program of implementation.

Beneficial Uses. The Basin Plan establishes the beneficial uses of surface water and groundwater to be protected in the North Coast Region. Beneficial uses for the Smith River Plain can be found in Section I.E.7 of this Order.

Biotic Ligand Model (BLM). The BLM is the current EPA recommended method for determining copper concentrations protective of aquatic life on a site-specific basis and has been adopted by the State of Idaho Department of Environmental Quality and the State of Oregon Department of Environmental Quality to develop state-wide, site-specific water quality criteria for copper.

Biotic Ligand Model Instantaneous Water Quality Criteria (BLM-IWQC). A criterion developed using a set of ten parameters to account for complex chemical reactions associated with copper in the environment: pH, Dissolved Organic Carbon (DOC), Calcium (Ca), Magnesium (Mg), Sodium (Na), Sulfate (SO4), Potassium (K), Chlorine (Cl), Alkalinity, and Temperature. The IWQC is used as a water quality threshold for dissolved copper for that specific site and sampling event only. The model's output also includes a toxicity unit (numerical value) to represent the relative risk of copper toxicity in the waterbody at the time of sample collection.

Commercial Lily Bulb Operation. A Commercial Lily Bulb Operation is land planted in lily bulbs or a similar bulb crop within a 5 year period (including appurtenant field roads, agricultural structures, and areas used for activities appurtenant to the Commercial Lily Bulb Operation) with one or more of the following characteristics: (1) The landowner or operator holds a current Operator Identification Number/Permit Number for pesticide use reporting; (2) The crop and/or its product is sold; or (3) the federal Department of Treasury Internal Revenue Service form 1040 Schedule F Profit or Loss from Farming is used to file federal taxes.

Concentration. The relative amount of a substance mixed with another substance. An example is 5 mg/L of nitrogen in water or 5 ppm (parts per million).

Controllable Sediment Discharge Sources (CSDS). Areas discharging or having the

potential to discharge sediment to waters of the state in violation of water quality standards or other requirements of this Order caused or affected by human activity and may feasibly and reasonably respond to management practices.

Cover Crop. (See Ground Cover).

Discharge. A release of a waste to waters of the state, either directly to surface waters or through percolation to groundwater. Wastes from irrigated agriculture include but are not limited to earthen materials (soil, silt, sand, clay, and rock), inorganic materials (metals, plastics, salts, boron, selenium, potassium, nitrogen, phosphorus, etc.) and organic materials such as pesticides. Discharges from Commercial Lily Bulb Farms regulated by this Order include discharges to surface water and groundwater, through mechanisms such as stormwater runoff flowing from irrigated lands, irrigation tailwater, percolation or pollutants to groundwater, and runoff resulting from operational spills. These discharges can contain wastes that could affect the quality of waters of the state and impair beneficial uses.

Discharge Point. A discharge point is defined as a location where surface water discharges, which are in hydrologic connection to off-farm surface waters, leave the Enrollee's property. A discharge point is any hydrologically connected discharge that is not an agricultural drainage structure as defined above.

Disturbance. When natural conditions have been modified in a way that may result in waste discharge to waters of the state from the site. Disturbed areas are where natural plant growth has been removed, whether by physical, animal, or chemical means, or natural grade has been modified for any purpose. Disturbance includes all activities whatsoever associated with developing or modifying land for agricultural related activities or access. Disturbance activities include, but are not limited to, construction of roads, buildings, water storage areas; excavation, grading, and site clearing. Disturbance includes crop areas, storage areas where soil or chemicals (e.g., pesticides, fertilizers, compost, or biosolids) are located.

Drinking Water Supply Well. Any groundwater well that is connected to a residence, workshop, or place of business that may be used for human consumption, cooking, or sanitary purposes that is located within an enrolled Assessor Parcel Number (APN). This includes all domestic wells located within the enrolled APN, not limited to the leased property or within the farm boundary. This definition includes "dual-use" wells that are used for both irrigation and domestic purposes. The State Water Resources Control Board (State Water Board), Groundwater Ambient Monitoring and Assessment (GAMA) Program defines an individual well serving a single residential connection as a "private domestic well." For the purposes of this Order, a "private domestic well" is a Drinking Water Supply Well if it is located on the enrolled parcel and there are drinking water users of that well.

Edge-of-Field. Edge of the Farm Area producing crops including the Appurtenant Field

Roads. Point in land where the surface water drains out of the Farm Area producing areas. See also Discharge Point.

Enrollee. The owner and/or operator of the Commercial Lily Bulb Operation discharges or has the potential to discharge waste that could directly or indirectly reach waters of the State and affect the quality of any surface water or groundwater. See also Landowner, Operator.

Ephemeral Stream. A Class III watercourse. A body of flowing water that contains water for only part of the year, but more than just after rainstorms and as snowmelt as shown in the NHD shapefile. In the absence of diversion, water is flowing less than three months during a typical year and the stream does not support riparian vegetation or aquatic life. Ephemeral watercourses typically have water flowing for a short duration after precipitation events or snowmelt and show evidence of being capable of sediment transport.

Erosion. The gradual destruction of land surface by wind or water, intensified by land-clearing practices related to farming, residential or industrial development, road building, or logging.

Exceedance. A reading using a field instrument or a detection by a California State-certified analytical laboratory where the detected result is above an applicable water quality standard for the parameter or constituent.

Farm Area. The planted area and appurtenant structures, field roads, maintenance areas, mixing and loading sites, and appurtenant storage yards on a Commercial Lily Bulb Operation.

Field. A term to describe a contiguous planted area that is farmed in lily bulbs in any particular year for the purposes of monitoring, reporting and adaptive management. A Field is a contiguous block of planted lily bulbs not separated by Appurtenant Field Roads or waterbodies. Where this Order scales requirements by Management Unit, Enrollees may report data for a portion of a Field or for multiple Fields provided that the reported area has (1) the same fertilizer inputs, (2) the same irrigation management, (3) and the same management practices. See Management Unit.

Ground Cover. Ground cover refers to the following practices: (1) Cover crop can be grasses, legumes, forbs, or other herbaceous plants established in planted fields for livestock grazing, for production into hay and forage crops, or provide seasonal or year-round ground cover for conservation purposes. (2) Conservation cover is establishing and maintaining perennial vegetated cover to protect soil and water resources on lands needing permanent protective cover that will not be used for forage production. (3) Effective soil cover includes mulching, straw mulching, plant residues or other suitable materials produced off site to the land surface. Mulching is used on bare, exposed soil surfaces that are deemed to be potential critical erosion areas. In most cases, mulch will

consist of grain straw residue, but may include wood chips, leaves, composted yard waste, etc. (NRCS Conservation Practice Standards 2016[76]).

Ground Disturbing Management Practices. These measures could include but are not limited to practices to prevent erosion of exposed soil and stockpiles, including watering for dust control, establishing perimeter silt fences, and/or placing fiber rolls; minimizing soil disturbance areas; implementing practices to maintain water quality, including silt fences, stabilized construction entrances, and storm drain inlet protection; limiting construction to dry periods; and revegetating disturbed areas.

Groundwater. The supply of water found beneath the Earth's surface, usually in aquifers which can supply wells and springs.

Groundwater Protection Formula, Values and Targets. The Groundwater Protection (GWP) Formula generates GWP Values, expressed as either nitrate-N loading numbers or concentrations of nitrate in water (e.g., mg/L), reflecting the influence of total applied nitrogen, total removed nitrogen, recharge conditions, and other relevant and scientifically supported variables that influence the potential average concentration of nitrate in water expected to reach groundwater in a given township over a given time period. GWP Values are calculated based on reported INMP data and reflect discharge estimates from the bottom of the root-zone. GWP Targets considers GWP Values to establish the nitrogen loading rate necessary to comply with the Antidegradation Policy and Basin Plan.

High-Water Mark. That line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

High Vulnerability Groundwater Basin. Defined in the ESJ Order as areas "where known groundwater quality impacts exist for which irrigated agricultural operations are a potential contributor or where conditions make groundwater more vulnerable to impacts from irrigated agricultural activities." For the purposes of this Order, 'high vulnerability areas' are defined as the priority groundwater basins having a relatively high threat from salts and nutrients and would benefit from salt and nutrient management planning as defined in Groundwater Basin Evaluation and Prioritization Resolution No. R1-2021-0006.

Hydrologically Connected. Farm areas with a continuous surface flow path to a natural stream channel during a storm runoff event (also referred to as hydrologic connectivity). Connectivity usually occurs through drainage structures, drainage inlets, road ditches, gullies, and channels.

Hydrologically-Connected Undesignated Channel. Channels not part of the NHD

dataset that are hydrologically-connected to off-farm surface waters. Includes agricultural ditches.

Inactive Well. A well is considered "inactive" when it has been taken out of service but has not been destroyed (see Abandoned Well definition). An inactive well must not allow impairment of water quality within the well and/or groundwater encountered by the well.

Individual Enrollee. An Enrollee in the Lily Bulb Order who is not part of a Coalition. The Individual Enrollee is responsible for conducting all monitoring individually and reporting directly to the North Coast Water Board.

Intermittent Stream. A Class II watercourse. A body of flowing water that contains water only during or after a local rainstorm or heavy snowmelt as shown in the NHD shapefile. In the absence of diversions, water is flowing for three to nine months during a typical year, provides aquatic habitat for non-fish aquatic species, fish always or seasonally present within 1,000 feet downstream, and/or water is flowing less than three months during a typical year and the stream supports riparian vegetation.

Invasive Species. Organisms (plants, animals, or microbes) that are not native to an environment and that, once introduced establish, quickly reproduce and spread, and cause harm to the environment, economy, or human health. U.S. Department of Agriculture, Natural Resource Conservation Service website: EnviroAtlas Hydrologic Unit Codes Fact Sheet[77]. For guidance on identifying species of concern, see the Cal-IPC website: Plants A to Z[78].

Irrigation. Applying water to land areas to supply the water and nutrient needs of plants.

Irrigation Management Practices. Management practices designed to improve irrigation efficiency and reduce the amount of irrigation return flow or tailwater, and associated degradation or pollution of surface and groundwater caused by discharges of waste associated with irrigated lands.

Irrigation and Nitrogen Planning Specialist. A Certified Crop Advisor (CCA) who has completed the California Nitrogen Management exam through The California Department of Food and Agriculture (CDFA), the University of California – Davis, the American Society of Agronomy's (ASA) International Certified Crop Adviser (ICCA) Coalition and/or the CCA – Western Region (WR) Board and takes the required continuing education credits. Enrollees may self-certify their INMP if they take the CDFA Irrigation and Nitrogen Management Training for Grower Self-Certification, pass the Irrigation and Nitrogen Management Training and Exam and maintain the certification through continuing education. More information can be found at CDFA FREP Training (https://www.cdfa.ca.gov/is/ffldrs/frep/training.html).

Landowner. An individual or entity who has legal ownership of a parcel(s) of land. See also Enrollee, Operator.

Leaching. In agriculture, leaching is the loss of water-soluble plant nutrients from the soil, due to the percolation of rain and irrigation water. Leaching may also refer to the salinity control practice of applying a small amount of excess irrigation to drain down salts from the root soil profile to avoid salts from building up in the soil. In the natural environment leaching contributes to groundwater contamination. As water from rain, flooding, or other sources seeps into the ground, it can dissolve chemicals and carry them into the underground water supply.

Load. The mass of a substance discharged over a given amount of time, for example 10 mg/day or 5 kg/day.

Major Storm Event. A Major Storm Event is defined as a storm that is forecasted to produce at least one inch of precipitation within a 24-hour period and is preceded by a minimum of 72 consecutive hours with less than 0.1 inches of precipitation. A Major Storm Event has ended after at least 48 consecutive hours during which no more than 0.1 inches of precipitation has occurred in any 24 hour period. See Attachment D for guidance.

Management Unit. Where this Order allows reporting by Management Unit, Enrollees may report data for a portion of a Field or for multiple Fields provided that the reported area has (1) the same fertilizer inputs, (2) the same irrigation management, and (3) the same management practices. Management Units can be defined by the Enrollee in a manner consistent with the farming operation so long as the Enrollee tracks which Field(s) comprise each Management Unit. See Field.

Method Detection Limit. The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero in accordance with USEPA Definition and Procedure for the Determination of the Method Detection Limit, Revision 2. The laboratory establishes the MDL values based on the analytical test method and the types of calibrated laboratory equipment that are used.

Monitoring. Observing and checking a feature or factor over time to determine compliance with this Order or other regulatory requirements. Monitoring in this Order includes but is not limited to surface water or groundwater sampling and analysis to evaluate water quality in connection with agricultural activities, and inspecting operations, management practice implementation and effectiveness, maintenance of on-site records, and management practice reporting.

Nitrogen Applied. Total nitrogen applied includes nitrogen in any product, form, or concentration including, but not limited to, organic and inorganic fertilizers, slow-release products, compost, compost teas, manure, extracts, nitrogen present in the soil, and

nitrate in irrigation water; it is reported in units of pounds of nitrogen per crop, per acre for each commercial lily bulb Field or nitrate loading risk unit.

Nitrogen Removed. Nitrogen Removed includes all nitrogen taken from the Field in harvested or other materials. Other materials may include leaf material, bulbs, and any other source of nitrogen removed from the field.

Nitrogen-Removal Coefficient (CN). Percent of nitrogen content in the dry matter of plant tissue. The CN multiplied by the weight of plant material removed from the Fields, can be used to estimate the nitrogen removed from the marketable portion of a crop.

Nonpoint Source (NPS) Pollution. The Basin Plan states that nonpoint sources of water pollution are generally defined as sources which are diffuse (spread out over a large area). Nonpoint sources of pollution are not subject to NPDES permitting. The wastes are generally carried off the land by runoff. Common nonpoint sources of pollution are activities associated with agriculture, timber harvest, certain mining, dams, and saltwater intrusion.

Nitrogen Management Practices. Management practices designed to reduce the nitrogen loss from agricultural lands, which occur through edge-of-field runoff or leaching from the root zone.

Operator. Person responsible for or otherwise directing farming operations in decisions that may result in a discharge of waste to surface water or groundwater, including, but not limited to, a farm/ranch manager, lessee, or sub- lessee. If enrolled, the operator is responsible for ensuring compliance with this Order and for any discharge of waste occurring on or from the operation. See also Enrollee, Landowner.

Operation. A distinct farming business, generally characterized by the form of business organization, such as a sole proprietorship, partnership, corporation, and/or cooperative. A farming operation may be associated with one-to-many individual farms/ranches.

Perennial Stream. A stream that holds water throughout the year. Also known as a Class I watercourse. In the absence of diversions, water is flowing for more than nine months during a typical year, fish always or seasonally present onsite or includes habitat to sustain fish migration and spawning, and/or a spring, an area where there is concentrated discharge of ground water that flows at the ground surface (a spring may flow any part of the year and does not have a defined bed and banks).

Pesticide. Any substance intended to control, destroy, repel, or otherwise mitigate a pest. The term pesticide is inclusive of all pest and disease management products, including insecticides, herbicides, fungicides, nematicides, rodenticides, algicides, etc.

Planted Area. The area of the Farm Area that is planted in lily bulbs; a subset of the

Farm Area. Planted area does not include appurtenant structures or field roads.

Pollutant. The man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water, including dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

Pollution. Any alteration of the quality of the waters of the state by waste to a degree which unreasonably affects either of the following: (1) the waters for beneficial uses, (2) facilities which serve these beneficial uses. Pollution may include contamination.

Quality Assurance Project Plan. A Quality Assurance Project Plan (QAPP) integrates all technical and quality aspects of a project, including planning, implementation, and assessment.

Qualified Professional. An individual licensed in California under the Professional Engineer Act (e.g., Professional Engineer), Geologist and Geophysicist Act (e.g., Professional Geologist, Certified Engineering Geologist, or Certified Hydrogeologist), and Land Surveyors' Act (e.g., Professional Land Surveyor); a California Registered Professional Forester (RPF); or a Qualified Storm Water Pollution Prevention Plan (SWPPP) Developer (QSD), a certified soil scientist registered through the American Society of Agronomy; Certified Professional in Erosion and Sediment Control (CPSEC)™/Certified Professional in Storm Water Quality (CPSWQ)™ registered through EnviroCert International, Inc.; a or professional in erosion and sediment control registered through the National Institute for Certification in Engineering Technologies (NICET). A Qualified Professional must only perform work they are qualified to complete, consistent with applicable licensing and registration restrictions, and must certify any work completed. See Business and Professions Code sections 6700-6799, 7800-7887, and 8700-8805, respectively.

Quality of the Water. The "chemical, physical, biological, bacteriological, radiological, and other properties and characteristics of water which affect its use" as defined in the California Water Code Sec. 13050(g).

Receiving Waters. Surface waters or groundwater that receive or have the potential to receive discharges of waste from irrigated lands.

Riparian Vegetation. The vegetation (including dead, dying, or decaying vegetation) along a watercourse that is distinguished from other vegetation by its dependence on the combination of soil moisture and other environmental factors provided by a watercourse.

Sediment and Erosion Control Practices. Practices used to prevent and reduce the amount of soil and sediment entering surface water in order to protect or improve water

quality.

Site-Specific Potential Effective Shade. The shade equivalent to that provided by topography and potential vegetation conditions at a site. Shade controls that are effective at correcting temperature impairments also operate to prevent impairments and provide other water quality protections such as bank stability and filtering sediment and other waste discharges.

Source of Drinking Water. Any water designated as municipal or domestic supply (MUN) beneficial use in a North Coast Water Board Basin Plan and/or as defined in State Water Board Resolution No. 88-63.

Stormwater. Stormwater runoff, snow melt runoff, and surface runoff and drainage, as defined in 40 CFR 122.26(b)(13).

Stormwater Runoff. Precipitation water in excess of what can infiltrate the soil surface and be stored in small surface depressions.

Streamside Area. The area between the waterside edge of riparian vegetation (or the nearest edge of the High-Water Mark if riparian vegetation is not present) and the field side edge of a vegetated buffer. A vegetated buffer is not synonymous with a filter strip, which may be used as part of farming practices (e.g., equipment turn-around) and disturbed for tilling, planting, or other practices.

Surface Runoff. Precipitation, snow melt, or irrigation water in excess of what can infiltrate the soil surface and be stored in small surface depressions, a major transporter of nonpoint source wastes in rivers, streams, and lakes.

Tailwater. Runoff of irrigation water from the lower end of an irrigated field.

Toxicity Unit. A toxicity unit (TU) is a simple ratio of the measured concentration of dissolved copper to the BLM-generated criteria and is calculated by dividing the measured value by the modelled criteria. See Attachment D: Methodologies and Procedures for more information on how the ‘TU’ is calculated and used. See also, Biotic Ligand Model.

Coalition. An organization or entity that is approved to represent Enrollees under this Order and is obligated to fulfill the following responsibilities: (1) collect fees from Enrollees and submit payments to the State Water Resources Control Board; (2) manage communications between Enrollees and the North Coast Water Board; (3) provide compliance education resources for Enrollees; and (4) fulfill monitoring and reporting requirements including but not limited to submitting monitoring workplans and necessary technical material, conducting regional surface water and groundwater monitoring, and connecting Enrollees to resources that can assist the preparation and implementation of Water Quality Management Plans.

Third-Party Program. The set of requirements under this Order that a Coalition is allowed to perform on behalf of the Enrollees enrolled in that Coalition.

Total Maximum Daily Load (TMDL). The calculation of the maximum amount of a particular material that a waterbody can assimilate on a regular basis and still support beneficial uses designated for that waterbody.

Trend. A general direction in which something is developing or changing. See also Water Quality Trend.

Unfarmed Wetland. Any wetland not currently farmed or historically farmed in the lily bulb crop rotation upon enrollment in the Order. An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.

Vegetated Buffer. A narrow, permanent strip of dense perennial vegetation (including riparian vegetation) where no crops are grown and which is established parallel to the contours of and perpendicular to the dominant slope of the land applications area for the purposes of slowing water runoff, enhancing water infiltration, trapping pollutants bound to sediment and minimizing the risk of any potential nutrients or pollutants from reaching surface waters. A vegetated buffer is not synonymous with a filter strip, which may be used as part of farming practices (e.g., equipment turn-around) and disturbed for tilling, planting, or other practices

Watercourse Setback. A setback area adjacent to a watercourse, including streams, creeks, and other designated or undesignated channels, whether perennial, intermittent, or ephemeral, that is required to be maintained in vegetative cover in accordance with this Order for purposes of Adaptive Management. This term is distinct and independent from Streamside Areas established to implement the Temperature Policy. The Watercourse Setback is measured from the waterside edge of vegetation to the planted area of the lily bulb field.

Waste. "Includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal" as defined in the California Water Code Sec. 13050(d). "Waste" includes irrigation return flows and drainage water from agricultural operations containing materials not present prior to use. Waste from irrigated agriculture includes earthen materials (such as soil, silt, sand, clay, rock), inorganic materials (such as metals, salts, boron, selenium, potassium, nitrogen, phosphorus), and organic materials such as pesticides.

Water Quality Benchmark. A concentration based on relevant water quality criteria

that is the numeric translation of applicable Water Quality Objectives. Water Quality Benchmarks are defined in Section G.1 of the Findings and included in Attachment A: Monitoring and Reporting Program. Water Quality Benchmarks for surface water are established for both acute and chronic exposure conditions. Exceedance of a Water Quality Benchmark is determined by considering both concentration and frequency within a Water Year. An acute Water Quality Benchmark is exceeded when the acute concentration is exceeded once within a Water Year, and a chronic Water Quality Benchmark is exceeded when the chronic concentration is exceeded twice within a Water Year. Receiving Water Limitations in Section II.C of this Order reference compliance with all water quality objectives, some of which are translated through Water Quality Benchmarks. Attainment of Water Quality Benchmarks demonstrates attainment of the corresponding Water Quality Objective and compliance with Receiving Water Limitations. Conversely, exceedance of a Water Quality Benchmark indicates that discharges may be causing or contributing to an exceedance of a Water Quality Objective and are, therefore, in violation of Receiving Water Limitations of the Order. Water Quality Benchmarks for groundwater are protective of applicable Water Quality Objectives. Attainment of Water Quality Benchmarks for groundwater in this Order demonstrate compliance with Receiving Water Limitations.

Water Quality Objective(s). “Limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specified area,” as defined in Sec. 13050(h) of the California Water Code. Water Quality Objectives may be either numerical or narrative and serve as Water Quality Criteria for purposes of section 303 of the Clean Water Act.

Water Quality Standard. Provisions of State or Federal law that consist of the beneficial designated uses or uses of a waterbody, the numeric and narrative water quality criteria that are necessary to protect the use or uses of that particular waterbody, and an antidegradation statement. Water quality standards include water quality objectives in the North Coast Water Board’s Basin Plan, water quality criteria in the California Toxics Rule and National Toxics Rule adopted by USEPA, and/or water quality objectives in other applicable State Water Board plans and policies. For groundwater with the beneficial use of municipal or domestic water supply, the applicable drinking water standards are those established by the USEPA or California DDW, whichever is more stringent. Under Sec. 303 of the Clean Water Act, each State is required to adopt water quality standards.

Water Quality Trend. A change in time of a measured chemical constituent that represents as aspect of the quality of the water (e.g., increasing, stable, or decreasing concentration of a constituent). The analysis of a water quality trend predicts the behavior of water quality parameters and overall water quality in the time domain.

Waters of the State. “Any surface water or groundwater, including saline waters, within the boundaries of the State” as defined in the California Water Code Sec. 13050(e).

"Waters of the state" includes all "waters of the U.S." Any significant accumulation of water above the ground surface, such as lakes, ponds, rivers, streams, creeks, springs, wetlands, and canals.

Water Year. A Water Year is defined as October 1st through September 30th of each year.

III. Endnotes

The following endnotes apply to Order No. R1-202X-00XX only. Endnotes for the MRP shall be provided at the end of Attachment A: Monitoring and Reporting Program. Endnotes are arranged in order that they appear in the document.

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[1] The California Interagency Watershed Map of 1999 (final version Calwater 2.2.1 updated in 2014) was the State of California's working definition of watershed boundaries prior to the development of the federal Hydrologic Unit Code (HUC) system. The purpose of the Calwater dataset was to standardize the boundary delineation, coding, and naming of California watersheds by government agencies. Calwater divides the State into ten Hydrologic Regions (HR). Each HR is progressively subdivided into six smaller, nested levels: the Hydrologic Unit (HU, major rivers), Hydrologic Area (HA, major tributaries), Hydrologic Sub-Area (HSA), Super Planning Watershed (SPWS), and Planning Watershed (PWS).

[2] Lily bulb crop rotation can sometimes have longer or shorter crop rotation cycles than three-to-five years.

[3] For the purposes of this Order, pesticides include insecticides, herbicides, and fungicides.

[4] 2018 SWAMP Monitoring Report: 180101-FINAL SWAMP REPORT_Smith River.pdf https://www.waterboards.ca.gov/northcoast/water_issues/programs/agricultural_lands/pdf/180116/180101-FINAL%20SWAMP%20REPORT_Smith%20River.pdf

[5] See Smith River Plain Water Quality Management Plan: Smith River Plain Water Quality Management Plan Public Review Draft February 2021. https://www.waterboards.ca.gov/northcoast/water_issues/programs/agricultural_lands/lily/pdf/2021/smithmgmttplan.pdf

[6] 2025 SWAMP Report_Smith River Plain Surface Water Monitoring Report 2021-2024 https://waterboards.ca.gov/northcoast/board_info/board_meetings/10_2025/10_08/pdf/1/1-smith-report.pdf

[7] Smith River Plain Surface Water Monitoring Study 2021-2024 https://www.waterboards.ca.gov/northcoast/water_issues/programs/agricultural_lands/lily/pdf/2025/25_SWAMP_MR_SRPWM.pdf

[8] Under section 9 of the ESA, it is illegal to import, export, or take endangered species for any purpose, including commercial activity. The term “take” means to harass, hunt, shoot, capture, trap, kill, collect, wound, harm, or pursue an ESA-listed species, or attempt any of these activities. See Protective Regulations for Threatened Species under the Endangered Species Act: Section 4(d) | NOAA Fisheries for more information. (https://www.fisheries.noaa.gov/national/endangered-species-conservation/protective-regulations-threatened-species-under-endangered#:~:text=Under%20section%209%20of%20the,attempt%20any%20of%

20these%20activities.)

[9] Pounds of copper itself, not pounds of a copper containing compound.

[10] Hurst, M., Wolfe, L., & Selby, P. (2024). The Effects of Vegetative Barriers on Copper in Runoff from Lily Bulb Fields. California State Polytechnic University – Humboldt. Final Report submitted to the California State University - Agricultural Research Institute (CSU-ARI) and Southern California Coastal Water Research Project. Date: 8/15/2024

[11] Fischer, R.A., Martin, C.O., Ratti, J.T., & Guidice, J. (2000). Improving Riparian Buffer Strips for Water Quality and Wildlife. U.S. Army Engineer Research and Development Center (ERDC).

[12] Cole, L.J., Stockan, J., & Helliwell, R. (2020). Managing riparian buffer strips to optimise ecosystem services: A review. Agriculture, Ecosystems & Environment, 296, 106891.

[13] See Tables I.3 and I.4 in the Findings for a consolidated list of Water Quality Benchmarks.

[14] See rb1_smith_river_jan2018.pdf (ca.gov) (https://www.waterboards.ca.gov/water_issues/programs/swamp/docs/reglrpts/rb1_smith_river_jan2018.pdf)

[15] At the Sarina Road SWAMP Monitoring location

[16] See Aquatic Life Benchmarks and Ecological Risk Assessments for Registered Pesticides | US EPA for US EPA Aquatic Life Benchmarks (https://www.epa.gov/pesticide-science-and-assessing-pesticide-risks/aquatic-life-benchmarks-and-ecological-risk)

[17] Toxicity was determined using methods developed by the UC Davis Aquatic Health Program Laboratory.

[18] See the 2018 SWAMP Report: 180101-FINAL SWAMP REPORT_Smith River.pdf (ca.gov)

[19] Hurst, M., Bright, P., Villalta, E., & Wolfe, L. (2022). The Bioavailability of Copper in the Smith River Plain. California State University - Agricultural Research Institute (ARI) and the Tolowa Dee-ni' Nation. Cal Poly Humboldt, Arcata, CA. August 15, 2022.

[20] Sandahl, J. F., M. J. B. Miyasaka, N. Koide, and H. Ueda. "A Sensory System at the Interface between Urban Stormwater Runoff and Salmon Survival." *Environmental Science & Technology*, vol. 41, no. 8, 2007, pp. 2998-3004.

[21] Olivari, Francisco A., Pedro P. Hernández, and Miguel L. Allende. "Acute Copper Exposure Induces Oxidative Stress and Cell Death in Lateral Line Hair Cells of Zebrafish Larvae." *Brain Research*, vol. 1244, 2008, pp. 1-12.

[22] Visit the North Coast Lily Bulb page to access prior studies: https://www.waterboards.ca.gov/northcoast/water_issues/programs/agricultural_lands/lily

[23] Normalized application rates were determined by dividing application rates for each

tributary watershed by the tributary area in acres.

[24] The Water Quality Benchmark for diuron and imidacloprid in this Order are consistent with the USEPA Aquatic Life Benchmarks. The Aquatic Life Benchmark for diuron was updated in 2025. The 2025 SWAMP Report compared diuron and imidacloprid detections using benchmarks derived from UC Davis studies.

[25] View the Smith_River_Plain_2015_Groundwater_Interim_Monitoring_Report.pdf (ca.gov) https://www.waterboards.ca.gov/northcoast/water_issues/programs/agricultural_lands/pdf/151209/Smith_River_Plain_2015_Groundwater_Interim_Monitoring_Report.pdf

[26] Trace concentrations are concentrations between the Method Detection Limit and the Reporting Limit.

[27] Established health levels are drinking water standards developed by the CA Department of Pesticide Regulation, the CA State Water Board, and the US EPA. Concentrations below these levels are considered protective against both acute and chronic human health impacts from pesticide exposure

[28] See Smith_River_Plain_2015_Groundwater_Interim_Monitoring_Report.pdf (ca.gov) https://www.waterboards.ca.gov/northcoast/water_issues/programs/agricultural_lands/pdf/151209/Smith_River_Plain_2015_Groundwater_Interim_Monitoring_Report.pdf

[29] Smith River Management Plan, 2021. https://www.waterboards.ca.gov/northcoast/water_issues/programs/agricultural_lands/lily/pdf/2021/smithmgmttplan.pdf

[30] National Oceanic and Atmospheric Administration (NMFS). 2014. Final Recovery Plan for the Southern Oregon/Northern California Coast Evolutionarily Significant Unit of Coho Salmon (Oncorhynchus kisutch). National Marine Fisheries Service. Arcata, CA. 1841p

[31] See Essential Fish Habitat on the West Coast | NOAA Fisheries https://www.fisheries.noaa.gov/west-coast/habitat-conservation/essential-fish-habitat-west-coast

[32] 2005 Tidewater Goby Recovery Plan https://ecos.fws.gov/docs/recovery_plan/051207.pdf

[33] Portions of the Basin Plan's narrative toxicity objective have been superseded by the Statewide Aquatic Toxicity Provisions. (See Staff Report for State Policy for Water Quality Control: Toxicity Provisions, Appendix E, pp. 413-414. https://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/docs/2021/2021-toxicity-staff-report.pdf)

[34] Water Quality Benchmarks were derived from water quality criteria are generally consistent with the State Water Board's guidelines for listing impaired waters under Section 303(d) of the Clean Water Act. As a general approach, North Coast Water Board staff reviewed all available pesticide water quality criteria and selected the

most protective (i.e., lowest) values for relevant beneficial uses of surface waters and groundwater in the Smith River Plain. In surface waters, Water Quality Benchmarks (except the acute benchmark for ethoprop and the BLM-derived benchmarks for copper) are sourced from USEPA Aquatic Life Benchmarks. The BLM Instantaneous Water Quality Criteria or BLM-IWQC is a criterion developed using a set of ten parameters to account for complex chemical reactions associated with copper in the environment: pH, Dissolved Organic Carbon (DOC), Calcium (Ca), Magnesium (Mg), Sodium (Na), Sulfate (SO4), Potassium (K), Chlorine (Cl), Alkalinity, and Temperature. The IWQC is used as a water quality threshold for dissolved copper for that specific site and sampling event only. The model's output also includes a toxicity unit (numerical value) to represent the relative risk of copper toxicity in the waterbody at the time of sample collection. For groundwater Water Quality Benchmarks, the North Coast Water Board relies on the applicable Drinking Water Maximum Contaminant Level (MCL), if available. If an MCL is not available, the North Coast Water Board has selected the best available Drinking Water Standard available. Human Health Reference Levels (HHRL) are identified by California Department of Pesticide Regulation's Human Health Assessment Branch. Pesticide concentrations measured in water exceeding these reference levels indicate a health concern. They are not legally enforceable standards but can be used to identify pesticide levels in drinking water that could pose a human health risk. USEPA Chronic or Lifetime Human Health Benchmarks for Pesticides (HHBPs) are non-enforceable advisory values in drinking water protective of chronic non-carcinogenic effects over a lifetime of exposure, assuming that 20% of the exposure to a given pesticide is from water and additional exposure is derived from another source such as food, air, or dermal contact. USEPA Acute or One-day Human Health Benchmarks for Pesticides (HHBPs) are non-enforceable advisory values in drinking water protective of acute or up to one-day non-carcinogenic effects, assuming that the entire exposure to a given pesticide is from drinking water. Health-Based Screening Levels (HBSLs) are federal, non-enforceable water-quality benchmarks developed by the United States Geological Survey. The HBSL concentration level for diuron, for example, represents a one-in-one million cancer risk range.

[35] The toxicity unit (TU) is a simple ratio of the measured concentration of dissolved copper to the BLM-generated criteria and is calculated by dividing the measured value by the modelled criteria. See the 'Dissolved Copper Results' section below for more information on how the 'TU' is calculated and used.

[36] The BLM Instantaneous Water Quality Criteria or BLM-IWQC is a criterion developed using a set of ten parameters to account for complex chemical reactions associated with copper in the environment: pH, Dissolved Organic Carbon (DOC), Calcium (Ca), Magnesium (Mg), Sodium (Na), Sulfate (SO4), Potassium (K), Chlorine (Cl), Alkalinity, and Temperature. The IWQC is used as a water quality

threshold for dissolved copper for that specific site and sampling event only. The model's output also includes a toxicity unit (numerical value) to represent the relative risk of copper toxicity in the waterbody at the time of sample collection.

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[38] The Clean Water Act does not specifically define nonpoint source pollution, except by stating that nonpoint source is anything that is not considered a point source. A

point source is defined under federal regulation as “any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

[39] The Antidegradation Policy: https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/1968/rs68_016.pdf

[40] State Water Board Order WQ 86-17 (*Fay*), pp. 16-19.

[41] *Asociacion de Gente Unida por el Agua v. Central Valley Regional Water Quality Control Board* (2012) 210 Cal.App.4th 1255, 1262.

[42] State Water Board Order 2015-0075 (*Los Angeles MS4*), p. 23.

[43] While the baseline for the application of the state antidegradation policy is generally the highest water quality achieved since 1986, baseline water quality may be a lower level if that lower level was allowed through a permitting action that was consistent with applicable antidegradation policies, or where a water quality objective for a particular constituent was adopted after 1968, the baseline for that constituent is the highest water quality achieved since the adoption of the objective. State Water Board Order 2015-0075 (*Los Angeles MS4*) pp. 23-24, fn. 82.

[44] In the Matter of Review of Waste Discharge Requirements General Order No. R5-2012-0116 for Growers Within the Eastern San Joaquin River Watershed that are Members of the Coalition, SWRCB Order No 2018-0002 (2018): https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2018/wqo2018_0002_with_data_fig1_2_appendix_a.pdf.

[45] Questions and Answers Resolution, No. 68-16, State Water Board (Feb. 16, 1995), pp. 5-6.

[46] Questions and Answers Resolution, No. 68-16, State Water Board (Feb. 16, 1995), pp. 5-6.

[47] The State of California maintains multiple publicly accessible environmental monitoring databases and data systems that provide surface water and groundwater quality information, including: the California Environmental Data Exchange Network (CEDEN) for statewide surface water quality data (https://ceden.org/) ; GeoTracker, an online data access system of the State Water Resources Control Board (https://www.waterboards.ca.gov/oil-gas/geotracker/) ; the California Department of Pesticide Regulation’s Surface Water Database (SURF) (https://www.cdpr.ca.gov/environmental-monitoring/surface-water/) and Well Inventory Database for pesticide well sampling data (https://calpip.cdpr.ca.gov/wellInventoryDatabase.cfm) ; and the Groundwater Ambient Monitoring and Assessment (GAMA) Program’s online groundwater

quality tools (https://www.waterboards.ca.gov/gama/) .

[48] The total gross production value of the commercial lily bulb industry is estimated to be _____ and total jobs in Del North County are estimated to be ____.

[49] Note that highlighted items in this Draft Order reflect additional information to be collected in the revision phase, either as response to written comment, or though additional investigation.

[50] https://www.waterboards.ca.gov/gama/docs/hva_map_table.pdf

[51] See Monitoring and Reporting Findings for summary of the 2015 Smith River Plain Groundwater Monitoring Report.

[52] Note that this section reviews costs of compliance to the Enrollees in this Order. There are broader economic considerations not quantified in this section. For example, implementing this Order may result in positive economic impacts on the broader community through water quality benefits to tourism, recreation, or fishing.

[53] Estimated costs are generated from NRCS Conservation Practice Codes that can be referenced in the NRCS Field Office Technical Guide. https://www.nrcs.usda.gov/resources/guides-and-instructions/conservation-practice-standards

[54] See the North Coast Basin Plan for applicable water quality objectives. North Coast Basin Plan June 2025 Edition https://www.waterboards.ca.gov/northcoast/water_issues/programs/basin_plan/250703/06_25_BP.pdf

[55] See Appendix I for definition of a Field, which has a distinct geography the Lily Bulb Order uses for planted areas of lily bulb agriculture.

[56] Agricultural pollutants can include, but is not limited to fertilizers, fumigants, pesticides, herbicides, rodenticides, and other chemicals and wastes associated with agricultural activities.

[57] See Appendix 1 for definition.

[58] Engineered management practices shall be designed and installed in compliance with plans and specifications prepared by a civil engineer.

[59] The waterside edge of vegetation means the line on the bank that is established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. Enrollees may refer to the definition of Waterside edge of vegetation in Appendix I and/or Attachment D: Methodologies and Procedures for examples.

[60] This Order does not authorize agricultural activities or work in an Unfarmed Wetland. Enrollees must seek coverage through the 401 Water Quality Certification and Wetlands Program (see https://www.waterboards.ca.gov/northcoast/water_issues/programs/water_quality_

certification/) for discharges of dredged or fill material to waters of the state (e.g., agricultural development or agricultural activities in Unfarmed Wetlands). An Unfarmed Wetland is any wetland not currently farmed at time of adoption of the Order. An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation. (See https://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/2021/procedures.pdf).

[61] In this case, Hydrologically Connected refers to the lake or reservoir being Hydrologically Connected to the stream, not the Farm Area.

[62] Streambank restoration within wasters of the United States or waters of the state requires separate regulatory coverage under either Clean Water Act section 404/401 or alternative waste discharge requirements. See Water Quality Certification (https://www.waterboards.ca.gov/northcoast/water_issues/programs/water_quality_certification/)

[63] Maintenance of existing watercourse crossings without the need for additional permitting by the North Coast Water Board is limited to removal of vegetation impacting the use and function of the crossing (e.g., preventing vehicle access across the crossing or limiting the flow of water through the crossing infrastructure), clearing and maintaining watercourse function using hand tools or the manual placement of energy dissipating rock.

[64] Installation of surface water diversion infrastructure requires a valid water right from the State Water Board Division of Water Rights and may require additional permit coverage from the North Coast Water Board through an approved 401 Water Quality Certification or alternate waste discharge requirements.

[65] The level of effective shade provided by vegetation when the vegetation is growing at potential. For any given location, this term is called "site- specific potential effective shade."

[66] NRCS Technical Note on Riparian Buffer Design and Species Considerations (https://www.nrcs.usda.gov/plantmaterials/idpmstn7248.pdf) and Dewalle, David. (2010). Modeling Stream Shade: Riparian Buffer Height and Density as Important as Buffer Width1. JAWRA Journal of the American Water Resources Association. 46. 323 - 333. 10.1111/j.1752-1688.2010.00423.x.

[67] Compliance education sources include formal classroom training, individual meetings with a qualified trainer, printed materials, and/or internet-based training with an approved Coalition, University of California Cooperative Extension (UCCE), Natural Resources Conservation Service (NRCS), Resource Conservation Districts (RCDs), Regional or State Water Boards, Department of Pesticide Regulation,

California Department of Fish and Wildlife, California Department of Food and Agriculture, or other organizations as approved by the Executive Officer. Compliance education requirements are consistent with "outreach and education" requirements in the Statewide Precedential Order.

[68] For example, if the Field is to be prepped and planted to lily bulbs in the summer/fall of 2028, then the WQMP is due to the North Coast Water Board on January 1, 2028.

[69] Treatment Control Management Practices are the implementation of one or more mechanical, chemical, biologic, or any other treatment technology. Treatment control Management Practices must be designed by a qualified professional and must monitor pollutant concentration entering and exiting the treatment system.

[70] See definition in Appendix I

[71] The waterside edge of vegetation means the line on the bank that is established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. Enrollees may refer to the definition of Waterside edge of vegetation in Appendix I and/or Attachment D: Methodologies and Procedures for examples.

[72] Refer to relevant NRCS Conservation Practice Codes that can be referenced in the NRCS Field Office Technical Guide. https://www.nrcs.usda.gov/resources/guides-and-instructions/conservation-practice-standards

[73] See Runoff Volumes Standard Operating Procedure (Rainfall and runoff) SOP) https://www.waterboards.ca.gov/water_issues/programs/swamp/docs/cwt/guidance/512.pdf

[74] See INMP Worksheet for examples of groundwater protection management practices

[75] Guidance for electronic submittal (https://www.waterboards.ca.gov/northcoast/publications_and_forms/available_documents/pdf/2014/ECM_Letter-Guidelines.pdf).

[76] Natural Resources Conservation Service: Conservation Practice Standards Informationv (https://www.nrcs.usda.gov/getting-assistance/conservation-practices).

[77] See the EnviroAtlas Hydrologic Unit Codes Fact Sheet (https://enviroatlas.epa.gov/enviroatlas/datafactsheets/pdf/Supplemental/HUC.pdf).

[78] See the Cal-IPC website: Plants A to Z (https://www.cal-ipc.org/plants/profiles/).

Appendix II: Figures

Figure I.1: Fields used for lily bulb cultivation as reported in 2024 and major coastal tributaries of the Smith River Plain