STORMWATER POLLUTION PREVENTION PLAN

for

BROOKHURST PLACE PHASE II, LLC

RISK LEVEL ***1***

Legally Responsible Person (LRP):

Brookhurst Place Phase II
Kam Sang Company
John Hicks
626-500-5268

Prepared for:

Brookhurst Place Phase II LLC
411 E Huntington Drive, 305
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Project Address:

12854 Brookhurst Way
Garden Grove, CA 92840

SWPPP Prepared by:

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Deering Volkmann Viola, QSD#00826

SWPPP Preparation Date

July 6, 2025

Estimated Project Dates:

Start of Construction	Completion of Construction
11/03/2025	07/30/2027

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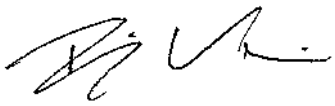
Qualified SWPPP Developer

Approval and Certification of the Stormwater Pollution Prevention Plan

Project Name: *BROOKHURST PLACE PHASE II*

Project Number/ID

"This Stormwater Pollution Prevention Plan and its appendices were prepared under my direction to meet the requirements of the California Construction General Permit (SWRCB Orders No. 2009-009-DWQ as amended by Order 2010-0014-DWQ and Order 2012-0006-DWQ). I certify that I am a Qualified SWPPP Developer in good standing as of the date signed below." re



QSD Signature

6/23/23

Date

Deering Volkmann Viola

QSD Name

#00826

QSD Certificate Number

Vice President/ Land Development Leader, California & Nevada

David Evans and Associates, Inc.

Title and Affiliation

(213) 337-3942

Telephone Number

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Email

Legally Responsible Person

Approval and Certification of the Stormwater Pollution Prevention Plan LACCD

Project Name: BROOKHURST PLACE PHASE II

Project Number/ID [if applicable]

Either the Legally Responsible Person (LRP) or Approved Signatory must electronically sign, certify, and submit via SMARTS to the SWRCB for Notice of Intent, Changes of Information, Annual Reports, and Notices of Termination. In doing so, the LRP or Approved Signatory is certifying:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

The LRP (and Approved Signatory, if applicable) for this project are:

John Hicks

Legally Responsible Person

Approved Signatory

Amendment Log

Project Name: Brookhurst Place Phase II

Project Number/ID

Amendment No.	Date	Brief Description of Amendment, include section and page number	Prepared and Approved By
			Name: QSD#
			Name: QSD#
			Name: QSD#
			Name: QSD#
			Name: QSD#
			Name: QSD#
			Name: QSD#
			Name: QSD#
			Name: QSD#

Section 1 SWPPP Requirements

1.1 INTRODUCTION

This Stormwater Pollution Prevention Plan (SWPPP) is designed to comply with California's *General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (General Permit) Order No. 2009-0009-DWQ (as amended by 2010-0014-DWQ and 2012-006-DWQ)* (NPDES No. CAS000002) issued by the State Water Resources Control Board (State Water Board) Appendix A. This SWPPP has been prepared following the SWPPP Template provided on the California Stormwater Quality Association Stormwater *Best Management Practice Handbook: Construction* (CASQA 2019). In accordance with the General Permit, Section XIV, this SWPPP is designed to address the following:

- Pollutants and their sources, including sources of sediment associated with construction, construction site erosion, and other activities associated with construction activity are controlled;
- Where not otherwise required to be under a Regional Water Quality Control Board (Regional Water Board) permit, all non-stormwater discharges are identified and either eliminated, controlled, or treated;
- Site BMPs are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity to the Best Available Technology/Best Control Technology (BAT/BCT) standard;
- Calculations and design details, as well as BMP controls, are complete and correct.

The Brookhurst Place Phase II project comprises 3.712 acres that will be disturbed. The Project is located at 12854 Brookhurst Way in Orange County, California. The project's location is shown on the Site Map in Appendix B.

1.2 PERMIT REGISTRATION DOCUMENTS

Required Permit Registration Documents (PRDs) shall be submitted to the State Water Board via the Stormwater Multi Application and Report Tracking System (SMARTS) by the Legally Responsible Person (LRP) or authorized personnel (i.e., Approved Signatory) under the direction of the LRP. The project-specific PRDs include:

1. Notice of Intent (NOI);
2. Risk Assessment (Construction Site Sediment and Receiving Water Risk Determination);
3. Site Map;
4. Annual Fee;
5. Signed Certification Statement (LRP Certification is provided electronically with SMARTS PRD submittal); and
6. SWPPP.

Site Maps can be found in Appendix B. A copy of the submitted PRDs shall also be kept in Appendix C along with the Waste Discharge Identification (WDID) confirmation.

1.3 SWPPP AVAILABILITY AND IMPLEMENTATION

The discharger shall make the SWPPP available at the construction site during working hours (see Section 7.5 of CSMP for working hours) while construction is occurring and shall be made available upon request by a State or Municipal inspector. When the original SWPPP is retained

by a crewmember in a construction vehicle and is not currently at the construction site, current copies of the BMPs and map/drawing will be left with the field crew and the original SWPPP shall be made available via request by radio/telephone. (CGP Section XIV.C)

The SWPPP shall be implemented concurrently with the start of ground disturbing activities.

1.4 SWPPP AMENDMENTS

The SWPPP should be revised when:

- If there is a General Permit violation.
- There is a reduction or increase in total disturbed acreage (General Permit Section II Part C).
- BMPs do not meet the objectives of reducing or eliminating pollutants in stormwater discharges.

Additionally, the SWPPP shall be amended when:

- There is a change in construction or operations which may affect the discharge of pollutants to surface waters, groundwater(s), or a municipal separate storm sewer system (MS4);
- There is a change in the project duration that changes the project's risk level; or
- When deemed necessary by the QSD. The QSD has determined that the changes listed in Table 1.1 can be field determined by the QSP. All other changes shall be made by the QSD as formal amendments to the SWPPP.

The following items shall be included in each amendment:

- Who requested the amendment;
- The location of proposed change;
- The reason for change;
- The original BMP proposed, if any; and
- The new BMP proposed.

Amendment shall be logged at the front of the SWPPP, and certification kept in Appendix D. The SWPPP text shall be revised replaced and/or hand annotated as necessary to properly convey the amendment. SWPPP amendments must be made by a QSD. The following changes have been designated by the QSD as "to be field determined" and constitute minor changes that the QSP may implement based on field conditions.

Table 1.1 List of Changes to be Field Determined

Candidate changes for field location or determination by QSP (1)	Check changes that can be field located, or field determined by QSP
Increase quantity of an Erosion or Sediment Control Measure	*X*
Relocate/add stockpiles or stored materials	*X*
Relocate or add toilets	*X*

Table 1.1 List of Changes to be Field Determined

Candidate changes for field location or determination by QSP (1)	Check changes that can be field located, or field determined by QSP
Relocate vehicle storage and/or fueling locations	*X*
Relocate areas for waste storage	*X*
Relocate water storage and/or water transfer location	*X*
Changes to access points (entrance/exits)	*X*
Change type of Erosion or Sediment Control Measure	*X*
Changes to location of erosion or sediment control	*X*
Minor changes to schedule or phases	*X*
Changes in construction materials	*X*
(1) Any field changes not identified for field location or field determination by QSP must be approved by QSD	

1.5 RETENTION OF RECORDS

Paper or electronic records of documents required by this SWPPP shall be retained for a minimum of three years from the date generated or date submitted, whichever is later, for the following items:

- Original SWPPP & EC Plans
- Updated SWPPPS & EC Plans
- All Inspections & Sampling Records
- Annual Reports
- Training Records

These records shall be available at the Site until construction is complete. Records assisting in the determination of compliance with the General Permit shall be made available within a reasonable time to the Regional Water Board, State Water Board, or U.S. Environmental Protection Agency (EPA) upon request. Requests by the Regional Water Board for retention of records for a period longer than three years shall be adhered to.

All records including inspection reports will be provided to GC, LRP or Identified Individual by Owner within 48 hours of being developed.

1.6 REQUIRED NON-COMPLIANCE REPORTING

If a General Permit discharge violation occurs, the QSP shall immediately notify the LRP. The LRP shall include information on the violation with the Annual Report. Corrective measures will be implemented immediately following identification of the discharge or written notice of non-compliance from the Regional Water Board. Discharges and corrective actions must be documented and include the following items:

- The date, time, location, nature of operation and type of unauthorized discharge.
- The cause or nature of the notice or order.
- The BMPs deployed before the discharge event, or prior to receiving notice or order.
- The date of deployment and type of BMPs deployed after the discharge event, or after receiving the notice or order, including additional measures installed or planned to reduce or prevent re-occurrence.

Reporting requirements for NALs exceedances are discussed in Section 7.7.2.7.

1.7 ANNUAL REPORT

The General Permit requires that permittees prepare, certify, and electronically submit an Annual Report no later than September 1 of each year. Reporting requirements are identified in Section XVI of the General Permit. Annual reports will be filed in SMARTS and in accordance with information required by the online forms. Annual Reports will be developed in SMARTS by notification that the report is ready for review will be sent to the LRP by August 15th of each reporting year the project is active.

1.8 CHANGES TO PERMIT COVERAGE

The General Permit allows for the reduction or increase of the total acreage covered under the General Permit when: a portion of the project is complete and/or conditions for termination of coverage have been met (see Section 1.9); when ownership of a portion of the project is purchased by a different entity; or when new acreage is added to the project.

Modified PRDs shall be filed electronically within 30 days of a reduction or increase in total disturbed area if a change in permit-covered acreage is to be sought. The SWPPP shall be modified appropriately and shall be logged at the front of the SWPPP and certification of SWPPP amendments are to be kept in Appendix D. Updated PRDs submitted electronically via SMARTS can be found in Appendix E.

1.9 NOTICE OF TERMINATION

A Notice of Termination (NOT) must be submitted electronically by the LRP via SMARTS to terminate coverage under the General Permit. According to the requirements of Section II.D.1 of the General Permit, the following method will be used to satisfy final cover requirements:

The NOT must include a final Site Map and representative photographs of the project site that demonstrate final stabilization has been achieved. The NOT shall be submitted within 90 days of construction completion. The Regional Water Board will consider a construction site complete when the conditions of the General Permit, Section II.D, have been met.

Section 2 Project Information

2.1 PROJECT AND SITE DESCRIPTION

2.1.1 Site Description

The Brookhurst Place Phase II project encompasses approximately 3.712 acres, consisting of lot 1, a residential development, and lot 2, a construction storage area, dirt stockpile and sediment basin/pond. Lot 1 and 2 of Tract Map 17702 are in the middle westerly portion of the site. The remaining lots 3 through 6 include the remaining acreage. It is situated at the intersection of Garden Grove Blvd and Brookhurst street in Orange County, California. The project is part of the larger Brookhurst Triangle project, spanning 11.5 acres, which involves a multiphase residential, commercial, hotel and mixed-use development. Total units to be building including Phase 1 that is complete and hotel is about 700 units.

To access the site, the primary east-west route is State Hwy. 22, located approximately 0.5 miles south of the proposed project. The project's precise coordinates are latitude 33.775362°N and longitude 117.957991°W, as indicated on the Site Map in Appendix B.

2.1.2 Existing Conditions

The Brookhurst Place Phase II project is situated at the intersection of Brookhurst Street and Garden Grove Boulevard in Garden Grove, CA. It is located approximately 14 miles from the ocean and features a mild slope. The high point in the center of the lots averages a slope of 1% outwards with the southeast providing the low for the site. Currently, the project site consists of bare soil with weeds and native grass spread throughout. The surrounding region incorporates a range of land uses, mostly residential and commercial.

2.1.3 Existing Drainage

The project site is relatively flat, with a slight downward slope from the center of the lots through sheet flow. It is anticipated that the proposed site grade will align with the existing grades. Stormwater discharges from the site are not classified as direct discharges, as defined by the State Water Board Region 8 Santa Ana. The site does not drain directly or indirectly into a receiving water body impaired by sediment. The hydrologic area falls within the watershed of Bolsa Chica Channel, specifically the lower Santa Ana River.

2.1.4 Geology and Groundwater

The Project site is situated within the southwestern portion of Orange County in Southern California. Throughout southern California, ground shaking, because of earthquakes, is a constant potential hazard. 1.5 miles from the job site is the Compton trust fault zone which will be the most significant effect of the site from a design standpoint. Based on our review of the Geologic Map of California the site is situated in Pliocene to Holocene age.

Per the soils report conducted by Cal Land Engineering, groundwater was encountered at 15 feet below the existing surface. Based on depth of groundwater and the depth of excavation (27 Feet), groundwater will be encountered. All groundwater encountered at the site will be discharged in compliance with our NPDES Stromwater Construction Permit.

2.1.5 Project Description

The project includes the following construction activities: shoring, excavation, rough grading trenching, compaction, wet and dry utility installation, electrical, and plumbing. These construction activities will include concrete, paving operations, framing, drywall, roofing, stucco, and other related construction operations. Construction activities is intended to comply with the requirements of the City of Garden Grove requiring the preparation of Storm Water Pollution Prevention Plan (SWPPP) requiring coverage under the Statewide National Pollution Discharge Elimination System (NPDES) General Permit for Construction Activities.

The Brookhurst Place Phase II project encompasses approximately 3.712 acres, consisting of lot 1, a residential development, and lot 2, a construction storage stockpile and future sediment basin. The proposed residential building will be on lot 1 with a total of 112 units that will be managed by a future HOA.

2.1.6 Developed Condition

Post-construction surface drainage will be directed southeastward through a series of storm drain systems installed within the project site, sized for a 100-year storm event. The project includes a below-grade level that will require the implementation of a subdrain system to gather the groundwater around the building. This water should be regarded as a distinct drainage system and is not subject to water quality guidelines. It will subsequently combine with the water quality discharge afterwards. Depending on the depth of the treatment chambers and the water quality analysis volumes, a pump may be necessary.

Post-construction drainage patterns and conveyance systems are on Civil Drawings in Appendix B.

Table 2.1 Construction Site Estimates

Construction site area	3.71	acres
Percent impervious before construction	0	%
Runoff coefficient before construction	.3	
Percent impervious after construction	33	%
Runoff coefficient after construction	.52	

2.2 PERMITS AND GOVERNING DOCUMENTS

In addition to the General Permit, the following documents have been taken into account while preparing this SWPPP:

- Regional Water Board requirements
- Basin Plan requirements
- Contract Documents

2.3 STORMWATER RUN-ON FROM OFFSITE AREAS

There is no anticipated offsite run-on to this construction site because of an existing stormwater conveyance system to prevent on-site flows. There are no up-gradient drainage areas within the project limits.

2.4 FINDINGS OF THE CONSTRUCTION SITE SEDIMENT AND RECEIVING WATER RISK DETERMINATION

A construction site risk assessment has been performed for the project and the resultant risk level is Risk Level 1.

The risk level was determined through the use of a site-specific analysis. The risk level is based on project duration, location, proximity to impaired receiving waters, and soil conditions. A copy of the Risk Level determination submitted on SMARTS with the PRDs is included in Appendix C.

Table 2.2 and Table 2.3 summarize the sediment and receiving water risk factors and document the sources of information used to derive the factors.

Table 2.2 Summary of Sediment Risk

RUSLE Factor	**Value**	**Dates for established value**
R	40.49	7/15/23-7/09/24
R	40.24	7/10/24-7/09/25
R	.191	7/10/24-8/31/25
K	.32	
LS	.23	LS individual method
Total Predicted Sediment Loss (tons/acre)		**5.96**
Overall Sediment Risk Low Sediment Risk < 15 tons/ acre Medium Sediment Risk >= 15 and < 75 tons/acre High Sediment Risk >= 75 tons/acre17		☒ **Low** ☐ **Medium** ☐ **High**

Table 2.3 Summary of Receiving Water

Receiving Water Name	**303(d) Listed for Sediment Related Pollutant (1)**	**TMDL for Sediment Related Pollutant (1)**	**Beneficial Uses of COLD, SPAWN, and MIGRATORY (1)**
None – Santa Ana River	☐ Yes ☒ No	☐ Yes ☒ No	☐ Yes ☒ No
Overall Receiving Water Risk			☒ **Low** ☐ **High**
(1) If yes is selected for any option the Receiving Water Risk is High			

Risk Level 1 sites are subject to both the narrative effluent limitations and numeric effluent standards. The narrative effluent limitations require stormwater discharges associated with construction activity to minimize or prevent pollutants in stormwater and authorized non-stormwater through the use of controls, structures and best management practices. Discharges from Risk Level 1 site are subject to NALs for pH and turbidity shown in Table 2-4. This SWPPP has been prepared to address Risk Level 1 requirements (General Permit Attachment D).

Table 2.4 Numeric Action Levels

Parameter	**Unit**	**Numeric Action Level Daily Average**
pH	pH units	Lower NAL = 6.5 Upper NAL = 8.5
Turbidity	NTU	250 NTU

2.5 CONSTRUCTION SCHEDULE

The site sediment risk was determined based on construction taking place between 11/03/2025 and 07/30/2027. Modification or extension of the schedule (start and end dates) may affect risk determination and permit requirements. The LRP shall contact the QSD if the schedule changes during construction to address potential impact to the SWPPP. The estimated schedule for planned work can be found in Appendix F.

2.6 POTENTIAL CONSTRUCTION ACTIVITY AND POLLUTANT SOURCES

Appendix G includes a list of construction activities and associated materials that are anticipated to be used onsite. These activities and associated materials will or could potentially contribute pollutants, other than sediment, to stormwater runoff.

The anticipated activities and associated pollutants were used in Section 3 to select the Best Management Practices for the project. Locations of anticipated pollutants and associated BMPs are shown on the Site Map in Appendix B.

For sampling requirements for non-visible pollutants associated with construction activity, please refer to Section 7.7.1. For a full and complete list of onsite pollutants, refer to the Safety Data Sheets (SDS), which are retained onsite at the construction trailer.

2.7 IDENTIFICATION OF NON-STORMWATER DISCHARGES

Non-stormwater discharges consist of discharges which do not originate from precipitation events. The General Permit provides allowances for specified non-stormwater discharges that do not cause erosion or carry other pollutants.

Non-stormwater discharges into storm drainage systems or waterways, which are not authorized under the General Permit and listed in the SWPPP, or authorized under a separate NPDES permit, are prohibited.

Non-stormwater discharges that are authorized from this project site include the following:

- Discharge from fire-fighter activities;
- Waters used to wash vehicles where detergents are not used;
- Water used to control dust in accordance with Part 3.1.B;
- Fire Hydrant flushing;
- Potable water including uncontaminated water from line flushing;
- Routine external building wash down that does not use detergents;
- Pavement wash water where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used;
- Uncontaminated air conditioning or compression condensate;
- Uncontaminated ground water or spring water
- Foundation or footing drains where flows are not contaminated with process materials such as solvents
- Uncontaminated excavation dewatering
- Landscape irrigation

These authorized non-stormwater discharges will be managed with the stormwater and non-stormwater BMPs described in Section 3 of this SWPPP and will be minimized by the QSP.

Activities at this site that may result in unauthorized non-stormwater discharges include:

- Vehicle and equipment cleaning, fueling and maintenance operations;
- Vehicle and equipment water wash;
- Slurries from concrete cutting and coring operations, PCC grinding or AC grinding operations;
- Slurries from concrete or mort mixing operations;
- Blast residue from high-pressure washing of structures or surfaces;
- Wash water from cleaning painting equipment;
- Runoff from dust control applications of water of dust palliatives;

- Sanitary septic wastes;
- Chemical leaks and/or spills of and kind including but not limited to petroleum, paints, cure compounds, etc.

Steps will be taken, including the implementation of appropriate BMPs, to ensure that unauthorized discharges are eliminated, controlled, disposed, or treated on-site.

Discharges of construction materials and wastes, such as fuel or paint, resulting from dumping, spills, or direct contact with rainwater or stormwater runoff, are also prohibited.

The following discharge(s) have been authorized by (a) regional NPDES permit(s):

- NONE

2.8 REQUIRED SITE MAP INFORMATION

The construction project's Site Map(s) showing the project location, surface water boundaries, geographic features, construction site perimeter and general topography and other requirements identified in Attachment B of the General Permit is located in Appendix B. Table 2.5 identifies Map or Sheet Nos. where required elements are illustrated.

Table 2.5 Required Map Information

Included on Map/Plan Sheet No. (1)	Required Element
1	The project's surrounding area (vicinity)
2	Site layout
2	Construction site boundaries
4	Drainage area(s)
5	Discharge locations
6	Sampling locations
6	Areas of soil disturbance (temporary or permanent)
6	Active areas of soil disturbance (cut or fill)
6	Locations of runoff BMPs
6	Locations of erosion control BMPs
6	Locations of sediment control BMPs
N/A	Locations of sensitive habitats, watercourses, or other features which are not to be disturbed
N/A	Locations of all post-construction BMPs
6	Waste storage areas
6	Vehicle storage areas
6	Material storage areas

Table 2.5 Required Map Information

Included on Map/Plan Sheet No. (1)	Required Element
6	Entrance and Exits
N/A	Fueling Locations

Notes: (1) Indicate maps or drawings that information is included on (e.g., Vicinity Map, Site Map, Drainage Plans, Grading Plans, Progress Maps, etc.)

Section 3 Best Management Practices

3.1 SCHEDULE FOR BMP IMPLEMENTATION

Table 3.1 BMP Implementation Schedule

	BMP	Implementation	Duration
Erosion Control	EC-1, Scheduling	Prior to Construction	Entirety of Project
	EC-5, Soil Binders	Based on Site Conditions	Bases on Site Conditions
	EC-9, Earth Dikes & Drainage Swales	Based on Site Conditions	Bases on Site Conditions
	EC-10, Velocity Dissipation Swales	Based on Site Conditions	Based on Site Conditions
Sediment Control	SE-1, Silt Fence	Start of Construction	Based on Site Conditions/TBD
	SE-3, Sediment Trap	Based on Site Conditions	Based on Site Conditions/TBD
	SE-4, Check Dams	Start of Construction	Based on Site Conditions/TBD
	SE-6, Gravel Bags	Start of Construction	Based on Site Conditions/TBD
	SE-7, Street Sweeping and Vacuuming	Start of Construction	Entirety of Project
Tracking Control	TC-1, Stabilized Construction Entrance	Start of Construction	Until Paving is Complete

Table 3.1 BMP Implementation Schedule

	BMP	Implementation	Duration
	TC-3, Entrance/Outlet Tire Wash	Bases on Site Conditions	Based on Site Conditions
Wind Erosion	WE-1 Wind Erosion Control	Start of Construction	Entirety of Project
Non-Stormwater BMPs	NS-1 Water Conservation Practices	Start of Construction	Entirety of Project
	NS-3 Paving and Grinding Operation	Start of Construction	Entirety of Project
	NS-6 Illicit Connection / Discharge	Start of Construction	Entirety of Project
	NS-7 Potable Water / Irrigation	Start of Construction	Entirety of Project
	NS-9 Vehicle and Equipment Fueling	Start of Construction	Entirety of Project
	NS-10 Vehicle and Equipment Maintenance	Start of Construction	Entirety of Project
	NS-12 Concrete Curing	Start of Construction	Entirety of Project
	NS-13 Concrete Finishing	Start of Construction	Entirety of Project
Waste Management	WM-01 Material Delivery and Storage	Start of Construction	Entirety of Project
	WM-02 Material Use	Start of Construction	Entirety of Project
	WM-03 Stockpile Management	Start of Construction	Entirety of Project
	WM-04 Spill Prevention and Control	Start of Construction	Entirety of Project
	WM-05 Solid Waste Management	Start of Construction	Entirety of Project
	WM-06 Hazardous Waste Management	Start of Construction	Entirety of Project
	WM-07 Contaminated Soil Management	Start of Construction	Entirety of Project
	WM-08 Concrete Waste Management	Start of Construction	Entirety of Project

Table 3.1 BMP Implementation Schedule

	BMP	Implementation	Duration
	WM-09 Sanitary-Septic Waste Management	Start of Construction	Entirety of Project

3.2 EROSION AND SEDIMENT CONTROL

Erosion and sediment controls are required by the General Permit to provide effective reduction or elimination of sediment related pollutants in stormwater discharges and authorized non-stormwater discharges from the Site. Applicable BMPs are identified in this section for erosion control, sediment control, tracking control, and wind erosion control.

3.2.1 Erosion Control

Erosion control, also referred to as soil stabilization, consists of source control measures that are designed to prevent soil particles from detaching and becoming transported in stormwater runoff. Erosion control BMPs protect the soil surface by covering and/or binding soil particles.

This construction project will implement the following practices to provide effective temporary and final erosion control during construction:

1. Preserve existing vegetation where required and when feasible.
2. The area of soil disturbing operations shall be controlled such that the Contractor is able to implement erosion control BMPs quickly and effectively.
3. Stabilize non-active areas within 14 days of cessation of construction activities or sooner if stipulated by local requirements.
4. Control erosion in concentrated flow paths by applying erosion control blankets, check dams, erosion control seeding, or alternate methods.
5. Prior to the completion of construction, apply permanent erosion control to remaining disturbed soil areas.

Sufficient erosion control materials shall be maintained onsite to allow implementation in conformance with this SWPPP.

The following erosion control BMP selection table, Table 3.2 indicates the BMPs that shall be implemented to control erosion on the construction site. Fact Sheets for temporary erosion control BMPs are provided in Appendix H.

These temporary erosion control BMPs shall be implemented in conformance with the following guidelines and as outlined in the BMP Factsheets provided in Appendix H. If there is a conflict between documents, the Site Map will prevail over narrative in the body of the SWPPP or guidance in the BMP Fact Sheets. Site specific details in the Site Map prevail over standard details included in the Site Map. The narrative in the body of the SWPPP prevails over guidance in the BMP Fact Sheets.

EC-1 Scheduling:

Description and Purpose

Scheduling is the development of a written plan that includes sequencing of construction activities and the implementation of BMPs such as erosion control and sediment control while taking local climate (rainfall, wind, etc.) into consideration. The purpose is to reduce the amount and duration of soil exposed to erosion by wind, rain, runoff, and vehicle tracking, and to perform the construction activities and control practices in accordance with the planned schedule.

EC-5 Soil binders:

Description and Purpose
Soil binders consist of applying and maintaining a soil stabilizer to exposed soil surfaces. Soil binders are materials applied to the soil surface to temporarily prevent water-induced erosion of exposed soils on construction sites. Soil binders also provide temporary dust, wind, and soil stabilization (erosion control) benefits. This is one of five temporary soil stabilization alternatives to consider.

EC-9 Earth Dike and Drainage Swales:

Description and Purpose
An earth dike is a temporary berm or ridge of compacted soil used to divert runoff or channel water to a desired location. A drainage swale is a shaped and sloped depression in the soil surface used to convey runoff to a desired location. Earth dikes and drainage swales are used to divert offsite runoff around the construction site, divert runoff from stabilized areas and disturbed areas, and direct runoff into sediment basins or traps.

EC-10 Velocity Dissipation Devices:

Description and Purpose

Outlet protection is a physical device composed of rock, grouted riprap, or concrete rubble, which is placed at the outlet of a pipe or channel to prevent scour of the soil caused by concentrated, high velocity flows.

WE-1 Wind Erosion Control:

Description and Purpose
Wind erosion or dust control consists of applying water or other chemical dust suppressants as necessary to prevent or alleviate dust nuisance generated by construction activities. Covering small stockpiles or areas is an alternative to applying water or other dust palliatives. Water used for Dust Control will not be allowed to discharge offsite.

California's Mediterranean climate, with a short "wet" season and a typically long, hot "dry" season, allows the soils to thoroughly dry out. During the dry season, construction activities are at their peak, and disturbed and exposed areas are increasingly subject to wind erosion, sediment tracking, and dust generated by construction equipment. Site conditions and climate can make dust control more of an erosion problem than water-based erosion. Additionally, many local agencies, including Air Quality Management Districts, require dust control and/or dust control permits in order to comply with local nuisance laws, opacity laws (visibility impairment) and the requirements of the Clean Air Act. Wind erosion control is required to be implemented at all construction sites greater than 1 acre by the General Permit.

Table 3.2 Erosion Control BMPs

CASQA Fact Sheet	BMP Name	Considered for the Project [1]	BMP Used		If not used, state reason and alternate BMP, if applicable
			YES	NO	
EC-1	Scheduling	✓	X		
EC-2	Preservation of Existing Vegetation	✓	X		
EC-3	Hydraulic Mulch	✓[2]			Not anticipated at this time
EC-4	Hydroseed	✓[2]			Not anticipated at this time
EC-5	Soil Binders	✓[2]	X		
EC-6	Straw Mulch	✓[2]			Not anticipated at this time
EC-7	Geotextiles and Mats	✓[2]			Not anticipated at this time
EC-8	Wood Mulching	✓[2]			Not anticipated at this time
EC-9	Earth Dike and Drainage Swales	✓[3]	X		
EC-10	Velocity Dissipation Devices	✓[3]	X		
EC-11	Slope Drains	✓[3]			Not anticipated at this time
EC-12	Stream Bank Stabilization				Not anticipated at this time
EC-14	Compost Blankets	✓[2]			Not anticipated at this time
EC-15	Soil Preparation-Roughening				Not anticipated at this time
EC-16	Non-Vegetated Stabilization	✓[2]			Not anticipated at this time
WE-1	Wind Erosion Control	✓	X		

[1] The General Permit's Fact Sheet Section II.J.1.c through II.J.1.g describes various BMPs that should be considered for use on the construction site.
[2] The QSD shall ensure implementation of one of the minimum measures listed or a combination thereof to achieve and maintain the Risk Level requirements.
[3] All run-on and runoff from the construction site shall be managed for LUP Types 2 and 3 and LUP Type 1 if the evaluation of quantity and quality of run-on and runoff deems them necessary or visual inspections show that the site requires these controls. Run-on from offsite shall be directed away from all disturbed areas, diversion of offsite flows may require design/analysis by a licensed civil engineer and/or additional environmental permitting.

3.2.2 Sediment Controls

Sediment controls are temporary or permanent structural measures that are intended to complement the selected erosion control measures and reduce sediment discharges from active construction areas. Sediment controls are designed to intercept and settle out soil particles that have been detached and transported by the force of water.

The following sediment control BMP selection table indicates the BMPs that shall be implemented to control sediment on the construction site. Fact Sheets for temporary sediment control BMPs are provided in Appendix H.

These temporary sediment control BMPs shall be implemented in conformance with the following guidelines and in accordance with the BMP Fact Sheets provided in Appendix H. If there is a conflict between documents, the Site Map will prevail over narrative in the body of the SWPPP or guidance in the BMP Fact Sheets. Site specific details in the Site Map prevail over standard details included in the Site Map. The narrative in the body of the SWPPP prevails over guidance in the BMP Fact Sheets.

SE-1 Silt Fence

Description and Purpose
A silt fence is made of a woven geotextile that has been entrenched, attached to supporting poles, and sometimes backed by a plastic or wire mesh for support. The silt fence detains water, promoting sedimentation of coarse sediment behind the fence. Silt fence does not retain soil fine particles like clays or silts.

SE-3 Sediment Trap "pond":

Description and Purpose
A sediment trap is a containment area where sediment-laden runoff is temporarily detained under quiescent conditions, allowing sediment to settle out or before the runoff is discharged by gravity flow. Sediment traps are formed by excavating or constructing an earthen embankment across a waterway or low drainage area.

SE-4 Check dams

Description and Purpose
A check dam is a small barrier constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary products, placed across a constructed swale or drainage ditch. Check dams reduce the effective slope of the channel, thereby reducing scour and channel erosion by reducing flow velocity and increasing residence time within the channel, allowing sediment to settle.

SE-5 Fiber rolls

Description and Purpose
A fiber roll consists of straw, coir, or other biodegradable materials bound into a tight tubular roll wrapped by netting, which can be photodegradable or natural. Additionally, gravel core fiber rolls are available, which contain an imbedded ballast material such as gravel or sand for additional weight when staking the rolls are not feasible (such as use as inlet protection). When fiber rolls are placed at the toe and on the face of slopes along the contours, they intercept

runoff, reduce its flow velocity, release the runoff as sheet flow, and provide removal of sediment from the runoff (through sedimentation). By interrupting the length of a slope, fiber rolls can also reduce sheet and rill erosion until vegetation is established.

SE-6 Gravel Bag Berm:

Description and Purpose
A gravel bag berm is a series of gravel-filled bags placed on a level contour to intercept sheet flows. Gravel bags pond sheet flow runoff, allowing sediment to settle out, and release runoff slowly as sheet flow, preventing erosion.

SE-7 Street Sweeping:

Description and Purpose
Street sweeping and vacuuming includes use of self-propelled and walk-behind equipment to remove sediment from streets and roadways, and to clean paved surfaces in preparation for final paving. Sweeping and vacuuming prevents sediment from the project site from entering storm drains or receiving waters.

TC-1 Stabilized Construction Entrance/Exit

Description and Purpose
A stabilized construction access is defined by a point of entrance/exit to a construction site that is stabilized to reduce the tracking of mud and dirt onto public roads by construction vehicles.

TC-3 Entrance/Outlet Tire Wash

Description and Purpose
A tire wash is an area located at stabilized construction access points to remove sediment from tires and under carriages and to prevent sediment from being transported onto public roadways.

Table 3.3 Temporary Sediment Control BMPs

CASQA Fact Sheet	BMP Name	Considered for the Project [1]	BMP used		If not used, state reason and alternate BMP, if applicable
			YES	NO	
SE-1	Silt Fence	✓[2] [3]	X		
SE-2	Sediment Basin				Not anticipated at this time
SE-3	Sediment Trap		X		
SE-4	Check Dams		X		
SE-5	Fiber Rolls	✓[2][3]	X		
SE-6	Gravel Bag Berm	✓[3]	X		As Needed
SE-7	Street Sweeping	✓	X		
SE-8	Sandbag Barrier				Not anticipated at this time
SE-9	Straw Bale Barrier				Not anticipated at this time
SE-10	Storm Drain Inlet Protection	✓ RL2&3			No Storm Drains on Site
SE-11	ATS				Not anticipated at this time
SE-12	Manufactured Linear Sediment Controls				Not anticipated at this time
SE-13	Compost Sock and Berm	✓[3]			Not anticipated at this time
SE-14	Biofilter Bags	✓[3]			Not anticipated at this time
TC-1	Stabilized Construction Entrance and Exit	✓	X		
TC-2	Stabilized Construction Roadway				Not anticipated at this time
TC-3	Entrance Outlet Tire Wash		X		

[1] The General Permit's Fact Sheet Section II.J.1.c through II.J.1.g describes various BMPs that should be considered for use on the construction site.
[2] The QSD shall ensure implementation of one of the minimum measures listed or a combination thereof to achieve and maintain the Risk Level requirements.
[3] All run-on and runoff from the construction site shall be managed. Risk Level 1 &3 shall provide linear sediment control along toe of slope, face of slope, and at the grade breaks of exposed slope.

3.3 NON-STORMWATER CONTROLS AND WASTE AND MATERIALS MANAGEMENT

3.3.1 Non-Stormwater Controls

Non-stormwater discharges into storm drainage systems or waterways which are not authorized under the General Permit are prohibited. Non-stormwater discharges for which a separate NPDES permit is required by the local Regional Water Board are prohibited unless coverage under the separate NPDES permit has been obtained for the discharge. The selection of non-stormwater BMPs is based on the list of construction activities with a potential for non-stormwater discharges identified in Section 2.7 of this SWPPP.

The following non-stormwater control BMP selection table indicates the BMPs that shall be implemented to control sediment on the construction site. Fact Sheets for temporary non-stormwater control BMPs are provided in Appendix H.

Non-stormwater BMPs shall be implemented in conformance with the following guidelines and in accordance with the BMP Fact Sheets provided in Appendix H. If there is a conflict between documents, the Site Map will prevail over narrative in the body of the SWPPP or guidance in the BMP Fact Sheets. Site specific details in the Site Map prevail over standard details included in the Site Map. The narrative in the body of the SWPPP prevails over guidance in the BMP Fact Sheets.

NS-1 Water Conservation Practices:

Description and Purpose
Water conservation practices are activities that use water during the construction of a project in a manner that avoids causing erosion and the transport of pollutants offsite. These practices can reduce or eliminate non-stormwater discharges.

NS-2 – Dewatering Operations:

Description and Purpose
Dewatering operations are practices that manage the discharge of pollutants when non-stormwater and accumulated precipitation (stormwater) must be removed from a work location to proceed with construction work or to provide vector control.

The General Permit incorporates Numeric Action Levels (NAL) for turbidity (see Section 2 of this handbook to determine your project's risk level and if you are subject to these requirements). Discharges from dewatering operations can contain high levels of fine sediment that, if not properly treated, could lead to exceedances of the General Permit requirements or Basin Plan standards.

The dewatering operations described in this fact sheet are not Active Treatment Systems (ATS) and do not include the use of chemical coagulations, chemical flocculation or electrocoagulation.

NS-3 Paving and Grinding Operation:

Description and Purpose
Paving and Grinding Operations will be implemented to prevent paving materials from being discharged off-site. Covers will be placed over each inlet adjacent to paving operations. The covers will consist of scrap carpeting placed over, and tucked under, each inlet grate. Following paving operations, the area will be swept, inlet covers will be removed, and the 'inlets will be inspected for paving materials.

NS-6 Illicit Connection/Discharge:

Description and Purpose
Procedures and practices designed for construction contractors to recognize illicit connections or illegally dumped or discharged materials on a construction site and report incidents.

NS-7 Potable Water/Irrigation:

Description and Purpose
Potable Water/Irrigation consists of practices and procedures to manage the discharge of potential pollutants generated during discharges from irrigation water lines, landscape irrigation, lawn or garden watering, planned and unplanned discharges from potable water sources, water line flushing, and hydrant flushing.

NS-9 Vehicle and Equipment Fueling:
Description and Purpose
Vehicle equipment fueling procedures and practices are designed to prevent fuel spills and leaks, and reduce or eliminate contamination of stormwater. This can be accomplished by using offsite facilities, fueling in designated areas only, enclosing or covering stored fuel, implementing spill controls, and training employees and subcontractors in proper fueling procedures.
All self-propelled vehicles will be fueled by mobile fueling vehicle. Fuel trucks, each equipped with absorbent spill clean-up materials, will be used for all on-site fueling, whether at the temporary fueling area or for mobile fueling elsewhere on the site. Drip pans will be used for all mobile fueling. The fueling truck will be parked on the paved fueling area for overnight storage. Drip pans or absorbent pads will be used for all vehicle and equipment maintenance activities that involve grease, oil, solvents, or other vehicle fluids.

NS-10 Vehicle & Equipment Maintenance:

Description and Purpose
Prevent or reduce the contamination of stormwater resulting from vehicle and equipment maintenance by running a "dry and clean site". The best option would be to perform maintenance activities at an offsite facility. If this option is not available then work should be performed in designated areas only, while providing cover for materials stored outside, checking for leaks and spills, and containing and cleaning up spills immediately. Employees and subcontractors must be trained in proper procedures.

NS-12 Concrete Curing:

Description and Purpose
Concrete curing is used in the construction of structures such as bridges, retaining walls, pump houses, large slabs, and structured foundations. Concrete curing includes the use of both chemical and water methods.

Concrete and its associated curing materials have basic chemical properties that can raise the pH of water to levels outside of the permitted range. Discharges of stormwater and non-stormwater exposed to concrete during curing may have a high pH and may contain chemicals, metals, and fines. Proper procedures reduce or eliminate the contamination of stormwater runoff during concrete curing.

NS-13 Concrete Finishing:

Description and Purpose
Concrete finishing methods are used for bridge deck rehabilitation, paint removal, curing compound removal, and final surface finish appearances. Methods include sand blasting, shot blasting, grinding, or high-pressure water blasting. Stormwater and non-stormwater exposed to concrete finishing by-products may have a high pH and may contain chemicals, metals, and fines. Proper procedures and implementation of appropriate BMPs can minimize the impact that concrete-finishing methods may have on stormwater and non-stormwater discharges.

Table 3.4 Temporary Non-Stormwater BMPs

CASQA Fact Sheet	BMP Name	Considered for the Project [1]	BMP used		If not used, state reason and alternate BMP, if applicable
			YES	NO	
NS-1	Water Conservation Practices	✓	X		
NS-2	Dewatering Operation	✓	X		
NS-3	Paving and Grinding Operation		X		
NS-4	Temporary Stream Crossing				Not anticipated at this time
NS-5	Clear Water Diversion				Not anticipated at this time
NS-6	Illicit Connection/Discharge	✓	X		
NS-7	Potable Water/Irrigation	✓	X		
NS-8	Vehicle and Equipment Cleaning	✓			Not anticipated at this time
NS-9	Vehicle and Equipment Fueling	✓	X		
NS-10	Vehicle and Equipment Maintenance	✓	X		
NS-11	Pile Driving Operation				Not anticipated at this time
NS-12	Concrete Curing		X		
NS-13	Concrete Finishing		X		
NS-14	Material and Equipment Use Over Water				Not anticipated at this time
NS-15	Demolition Removal Adjacent to Water				Not anticipated at this time
NS-16	Temporary Batch Plants				Not anticipated at this time

[1] The General Permit's Fact Sheet Section II.J.1.c through II.J.1.g describes various BMPs that should be considered for use on the construction site.

3.3.2 Materials Management and Waste Management

Materials management control practices consist of implementing procedural and structural BMPs for handling, storing, and using construction materials to prevent the release of those materials into stormwater discharges. The amount and type of construction materials to be utilized at the Site will depend upon the type of construction and the length of the construction period. The materials may be used continuously, such as fuel for vehicles and equipment, or the materials may be used for a discrete period, such as soil binders for temporary stabilization. Waste management consist of implementing procedural and structural BMPs for handling, storing, and ensuring proper disposal of wastes to prevent the release of those wastes into stormwater discharges.

Materials and waste management pollution control BMPs shall be implemented to minimize stormwater contact with construction materials, wastes and service areas; and to prevent materials and wastes from being discharged off-site. The primary mechanisms for stormwater contact that shall be addressed include:

- Direct contact with precipitation
- Contact with stormwater run-on and runoff
- Wind dispersion of loose materials
- Direct discharge to the storm drain system through spills or dumping
- Extended contact with some materials and wastes, such as asphalt cold mix and treated wood products, which can leach pollutants into stormwater.

A list of construction activities is provided in Section 2.6. The following Materials and Waste Management BMP selection table, Table 3.5, indicates the BMPs that shall be implemented to handle materials and control construction site wastes associated with these construction activities. Fact Sheets for Materials and Waste Management BMPs are provided in Appendix H. Material management BMPs shall be implemented in conformance with the following guidelines and in accordance with the BMP Fact Sheets provided in Appendix H. If there is a conflict between documents, the Site Map will prevail over narrative in the body of the SWPPP or guidance in the BMP Fact Sheets. Site specific details in the Site Map prevail over standard details included in the Site Map. The narrative in the body of the SWPPP prevails over guidance in the BMP Fact Sheets.

WM-1 Material Delivery and Storage:

Description and Purpose
Prevent, reduce, or eliminate the discharge of pollutants from material delivery and storage to the stormwater system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in watertight containers and/or a completely enclosed designated area, installing secondary containment, conducting regular inspections, and training employees and subcontractors.

This best management practice covers only material delivery and storage. For other information on materials, see WM-2, Material Use, or WM-4, Spill Prevention and Control. For information on wastes, see the waste management BMPs in this section.

In general, BMPs WM-1 and WM-2 will be implemented to help prevent discharges of construction materials during delivery, storage, and use. The general material storage area will

be located in the Contractor's yard. A gravel bag barrier (BMP SE-6) will be provided around the storage area to prevent run-on from adjacent areas. Two types of storage/containment facilities will be provided within the storage area to minimize storm water contact with construction materials:

- A separate covered storage/containment facility will be constructed adjacent to the shipping containers to provide storage for larger items such as drums and items shipped or stored on pallets.

- Very large items, such as light standards, framing materials, and stockpiled lumber, will be stored in the open in the general storage area. Such materials will be elevated with wood blocks to minimize contact with run-on.

- Spill clean-up materials, material safety data sheets, a material inventory, and emergency contact numbers will be maintained and stored in the southern shipping container.

WM-2 Material Use:

Description and Purpose
Prevent or reduce the discharge of pollutants to the storm drain system or watercourses from material use by using alternative products, minimizing hazardous material use onsite, and training employees and subcontractors.

WM-3 Stockpile Management:

Description and Purpose
Stockpile management procedures and practices are designed to reduce or eliminate air and stormwater pollution from stockpiles of soil, soil amendments, sand, paving materials such as Portland cement concrete (PCC) rubble, asphalt concrete (AC), asphalt concrete rubble, aggregate base, aggregate sub base or pre-mixed aggregate, asphalt minder (so called “cold mix” asphalt), and pressure treated wood.

All stockpiles must be contained and securely protected from both wind and rain erosion. To minimize wind erosion to stockpiles, form a new less erodible surface by either applying a spray on application with a tackifier or by covering with a wind impervious fabric such as a double-sided erosion control blanket. In addition, the stockpile can be pile orientation and shape can be changed. Sediment control is also required around the stockpile to minimize the potential for a sediment discharge from the site.

WM-4 Spill Prevention and Control:

Description and Purpose
Spill Prevention and Control will be implemented to contain and clean-up spills and prevent material discharges to the storm drain system. Spill prevention is also discussed above in Material Delivery, Storage, and below in the following waste management and equipment maintenance sections. Spill kits will be readily accessible at various locations on the construction site.

WM-5 Solid Waste Management:

Description and Purpose
The CGP for Risk Level 1 discharges shall implement Good Housekeeping as described in the GCP Attachment C, Page#2.

Solid Waste Management, and BMP WM-6, Hazardous Waste Management will be implemented to minimize storm water contact with waste materials and prevent waste discharges. Solid wastes will be loaded directly into trucks for off-site disposal. When on-site storage is necessary, solid wastes will be stored in watertight dumpsters in the general storage area of the Contractors yard. AC and PCC rubble will be stockpiled in the general storage area and will be surrounded with sediment controls (SE-6, Gravel Bag Barrier) and covered when necessary. Solid waste, including rubble stockpiles, will be removed and disposed off-site regularly. Local waste management district will provide solid waste disposal services. Hazardous wastes will be stored in the shipping containers or covered containment area discussed above for materials storage. Hazardous wastes will be appropriate and clearly marked containers and segregated from other non-waste materials.

WM-6 Hazardous Waste Management:

Description and Purpose
Prevent or reduce the discharge of pollutants to stormwater from hazardous waste through proper material use, waste disposal, and training of employees and subcontractors.

WM-7 Contaminated Soil Management:

Description and Purpose
Prevent or reduce the discharge of pollutants to stormwater from contaminated soil and highly acidic or alkaline soils by conducting pre-construction surveys, inspecting excavations regularly, and remediating contaminated soil promptly.

WM-8 Concrete Waste Management:

Description and Purpose
The use of concrete waste management measures including, concrete washouts (CWO), are waste management and pollution controls that prevent or reduce the discharge of pollutants to stormwater from concrete waste products by conducting washout offsite or onsite in a designated area. Concrete washouts should be emptied when they reach ¾ full.

WM-9 Sanitary-Septic Waste Management:

Description and Purpose
Proper sanitary and septic waste management prevent the discharge of pollutants to stormwater from sanitary and septic waste by providing convenient, well-maintained facilities, and arranging for regular service and disposal.

The Contractor will implement Sanitary and Septic Waste Management, and portable toilets will be located and maintained at the Contractor's yard for the duration of the project. Weekly maintenance will be provided, and wastes will be disposed off-site. The toilets will be located away from concentrated flow paths, traffic flow and downhill of active storm drains.

Sanitary facilities should have secondary containment and be placed inside perimeter controls and away from travel flows and concentrated flow paths.

WM-10 – Liquid Waste Management

Description and Purpose

Liquid waste management includes procedures and practices to prevent discharge of pollutants to the storm drain system or to watercourses as a result of the creation, collection, and disposal of non-hazardous liquid wastes.

Table 3.5 Temporary Materials Management BMPs

CASQA Fact Sheet	BMP Name	Considered for Project [1]	BMP used		If not used, state reason and alternate BMP, if applicable
			YES	NO	
WM-01	Material Delivery and Storage	✓	X		
WM-02	Material Use	✓	X		
WM-03	Stockpile Management	✓	X		
WM-04	Spill Prevention and Control	✓	X		
WM-05	Solid Waste Management	✓	X		
WM-06	Hazardous Waste Management	✓	X		
WM-07	Contaminated Soil Management	✓			TBD
WM-08	Concrete Waste Management	✓	X		
WM-09	Sanitary-Septic Waste Management	✓	X		
WM-10	Liquid Waste Management	✓	X		

[1] The General Permit's Fact Sheet Section II.J.1.c through II.J.1.g describes various BMPs that should be considered for use on the construction site.

3.4 POST CONSTRUCTION STORMWATER MANAGEMENT MEASURES

Post construction BMPs are permanent measures installed during construction, designed to reduce or eliminate pollutant discharges from the site after construction is completed.

This site is located in an area subject to a Phase I or Phase II Municipal Separate Storm Sewer System (MS4) permit approved Stormwater Management Plan. ☐ Yes ☒ No

The following source control postconstruction BMPs to comply with General Permit Section XIII.B and local requirements have been identified for the site:

- Revegetation
- Ditches

The 0.60 acre fenced substation site will have an O&M building of approximately 500 square feet, graveled area for employee parking and the substation, and other associated facilities. Substation equipment will be installed on concrete pads. Service power will be provided by local provider (SCE), and backup generators (diesel, propane or battery powered) may be installed for operations. The Project will be funded by the Owner.

A total of 1.66 acres of the site will have gravel surfaces for construction and maintenance access. The remainder of the disturbed area of the site used for substation laydown and construction access will be revegetated until the larger energy storage facility is built.

The larger energy storage facility will have paved access roads, storm drains, and a retention pond. The larger facility will also have a complete revegetation plan for disturbed areas.

Section 4 BMP Inspection, Maintenance and Rain Event Action Plan

4.1 BMP INSPECTION AND MAINTENANCE

The General Permit requires routine weekly inspections of BMPs, along with inspections before, during, and after qualifying rain events. A BMP inspection checklist must be filled out for inspections and maintained on-site onsite with the SWPPP. The inspection checklist includes the necessary information covered in Section 7.6. A blank inspection checklist can be found in Appendix I. Completed checklists shall be kept in CSMP Appendix P "Monitoring Records".

BMPs shall be maintained regularly to ensure proper and effective functionality. If necessary, corrective actions shall be implemented within 72 hours of identified deficiencies and associated amendments to the SWPPP shall be prepared by the QSD.

Specific details for maintenance, inspection, and repair of Construction Site BMPs can be found in the BMP Factsheets in Appendix H.

4.2 RAIN EVENT ACTION PLANS (N/A RISK 1 SITE)

The REAP is a written document designed to be used as a planning tool by the QSP to protect exposed portions of project sites and to ensure that the discharger has adequate materials, staff, and time to implement erosion and sediment control measures. These measures are intended to reduce the amount of sediment and other pollutants that could be generated during the rain event. It is the responsibility of the QSP to be aware of precipitation forecast and to obtain and print copies of NOAA's Forecast Weather Table Interface, available online at http://forecast.weather.gov/.

The SWPPP includes REAP templates but the QSP will need to customize them for each rain event. Site-specific REAP templates for each applicable project phase can be found in Appendix J. The QSP shall maintain a paper copy of completed REAPs in compliance with the record retention requirements Section 1.5 of this SWPPP. Completed REAPs shall be maintained in Appendix J.

The QSP will develop an event specific REAP 48 hours in advance of a precipitation event forecast to have a 50 percent or greater chance of producing precipitation in the project area. The REAP will be onsite and be implemented 24 hours in advance of any the predicted precipitation event.

At minimum the REAP will include the following site and phase-specific information:

1. Site Address;
2. Calculated Risk Level (2 or 3);
3. Site Stormwater Manager Information including the name, company and 24-hour emergency telephone number;
4. Erosion and Sediment Control Provider information including the name, company and 24-hour emergency telephone number;
5. Stormwater Sampling Agent information including the name, company, and 24-hour emergency telephone number;
6. Activities associated with each construction phase;
7. Trades active on the construction site during each construction phase;
8. Trade contractor information; and
9. Recommended actions for each project phase.

Section 5 Training

Appendix L identifies the QSPs for the project. To promote stormwater management awareness specific for this project, periodic training of job-site personnel shall be included as part of routine project meetings (e.g. daily/weekly tailgate safety meetings), or task specific trainings as needed.

The QSP shall be responsible for providing this information at the meetings, and subsequently completing the training logs shown in Appendix K, which identify the site-specific stormwater topics covered as well as the names of site personnel who attended the meeting. Tasks may be delegated to trained employees by the QSP provided adequate supervision and oversight is provided. Training shall correspond to the specific tasks delegated, including SWPPP implementation, BMP inspection and maintenance, and recordkeeping.

Documentation of training activities (formal and informal) is retained in SWPPP Appendix K.

Section 6 Responsible Parties and Operators

6.1 RESPONSIBLE PARTIES

Approved Signatories who are responsible for SWPPP implementation and have authority to sign permit-related documents are listed below. Written authorizations from the LRP for these individuals are provided in Appendix L. The Approved Signatories assigned to this project are:

Name	Title	Phone Number
John Hicks	LRP	626-500-5268

QSPs identified for the project are identified in Appendix L. The QSP shall have primary responsibility and significant authority for the implementation, maintenance, and inspection/monitoring of SWPPP requirements. The QSP will be available at all times throughout the duration of the project. Duties of the QSP include but are not limited to:

- Implementing all elements of the General Permit and SWPPP, including, but not limited to:
  - Ensuring that all BMPs are implemented, inspected, and properly maintained;
  - Performing non-stormwater and stormwater visual observations and inspections;
  - Performing non-stormwater and storm sampling and analysis, as required;
  - Performing routine inspections and observations;
  - Implementing non-stormwater management, and materials and waste management activities such as: monitoring discharges; general Site clean-up; vehicle and equipment cleaning, fueling and maintenance; spill control; ensuring that no materials other than stormwater are discharged in quantities which will have an adverse effect on receiving waters or storm drain systems, etc.;
- The QSP may delegate these inspections and activities to an appropriately trained employee but shall ensure adequacy and adequate deployment.
- Ensuring elimination of unauthorized discharges.
- The QSPs shall be assigned authority by the LRP to mobilize crews in order to make immediate repairs to the control measures.
- Coordinate with the Contractor(s) to assure all of the necessary corrections/repairs are made immediately and that the project complies with the SWPPP, General Permit, and approved plans at all times.
- Notifying the LRP or Authorized Signatory immediately of off-site discharges or other non-compliance events

6.2 CONTRACTOR LIST

Name:

Title:

Contractor:

Address:

Phone Number:

Emergency Number 24/7:

Section 7 Construction Site Monitoring Program

7.1 Purpose

This Construction Site Monitoring Program was developed to address the following objectives:

1. To demonstrate that the site is in compliance with the Discharge Prohibitions and of the Construction General Permit;
2. To determine whether non-visible pollutants are present at the construction site and are causing or contributing to exceedances of water quality objectives;
3. To determine whether immediate corrective actions, additional Best Management Practices (BMP) implementation, or SWPPP revisions are necessary to reduce pollutants in stormwater discharges and authorized non-stormwater discharges;
4. To determine whether BMPs included in the SWPPP and REAP are effective in preventing or reducing pollutants in stormwater discharges and authorized non-stormwater discharges.

7.2 Applicability of Permit Requirements

This project has been determined to be a Risk Level 1 project. The General Permit identifies the following types of monitoring as being applicable for a Risk Level 1 project.

Risk Level 1

- Visual inspections of BMPs;
- Visual monitoring, inspections and sampling requirements
- Visual monitoring of the site related to qualifying storm events;
- Visual monitoring of the site for non-stormwater discharges;
- Sampling and analysis of construction site runoff for pH and turbidity;
- Sampling and analysis of construction site runoff for non-visible pollutants when applicable; and
- Sampling and analysis of non-stormwater discharges when applicable.

7.3 Weather and Rain Event Tracking

Visual monitoring, inspections and sampling requirements of the General Permit are triggered by a qualifying rain event. The General Permit defines a qualifying rain event as any event that produces ½ inch of precipitation. A minimum of 48 hours of dry weather will be used to distinguish between separate qualifying storm events.

Visual monitoring, inspections, and sampling requirements of the General Permit are triggered by a qualifying rain event. The General Permit defines a qualifying rain event as any event that produces ½ inch of precipitation. A minimum of 48 hours of dry weather will be used to distinguish between separate qualifying storm events.

7.3.1 Weather Tracking

The QSP should daily consult the National Oceanographic and Atmospheric Administration (NOAA) for the Forecast Weather Table Interface. These forecasts can be obtained at http://forecast.weather.gov . Weather reports should be printed and maintained with the SWPPP in Appendix O “Weather Reports”.

7.3.2 Rain Gauges

The QSP shall install one (1) rain gauge on the project site. Locate the gauge in an open area away from obstructions such as trees or overhangs. Mount the gauge on a post at a height of 3 to 5 feet with the gauge extending several inches beyond the post. Make sure that the top of the gauge is level. Make sure the post is not in an area where rainwater can indirectly splash from sheds, equipment, trailers, etc.

The rain gauge shall be read daily during normal site scheduled hours. The rain gauge should be read at approximately the same time every day and the date and time of each reading recorded. Log rain gauge readings in Appendix O "Weather Records". Follow the rain gauge instructions to obtain accurate measurements.

Once the rain gauge reading has been recorded, accumulated rain shall be emptied, and the gauge reset.

7.4 Monitoring Locations

Monitoring locations are shown on the Site Maps in Appendix B. Monitoring locations are described in the Sections 7.6 and 7.7.

Whenever changes in the construction site might affect the appropriateness of sampling locations, the sampling locations shall be revised accordingly. All such revisions shall be implemented as soon as feasible and the SWPPP amended. Temporary changes that result in a one-time additional sampling location do not require a SWPPP amendment.

7.5 Safety and Monitoring Exemptions

Safety practices for sample collection will be in accordance with the Soil & Transportation Plan in Appendix S. A summary of the safety requirements that apply to sampling personnel is provided below.

This project is not required to collect samples or conduct visual observations (inspections) under the following conditions:

- During dangerous weather conditions such as flooding and electrical storms.
- Outside of scheduled site business hours.

Scheduled site business hours are Monday – Friday (7 am-3PM)

If monitoring (visual monitoring or sample collection) of the site is unsafe because of the dangerous conditions noted above, then the QSP shall document the conditions for why an exception to performing the monitoring was necessary. The exemption documentation shall be filed in Appendix P "Monitoring Records".

7.6 Visual Monitoring

Visual monitoring includes observations and inspections. Inspections of BMPs are required to identify and record BMPs that need maintenance to operate effectively, that have failed, or that could fail to operate as intended. Visual observations of the site are required to observe storm water drainage areas to identify any spills, leaks, or uncontrolled pollutant sources.

Table 7.1 identifies the required frequency of visual observations and inspections. Inspections and observations will be conducted at the locations identified in Section 7.6.3.

Table 7.1 Summary of Visual Monitoring and Inspections

Type of Inspection	Frequency
Routine Inspections	
BMP Inspections	Weekly[1]
BMP Inspections – Tracking Control	Daily
Non-Stormwater Discharge Observations	Quarterly during daylight hours
Rain Event Triggered Inspections	
Site Inspections Prior to a Qualifying Event	Within 48 hours of a qualifying event [2]
BMP Inspections During an Extended Storm Event	Every 24-hour period of a rain event[3]
Site Inspections Following a Qualifying Event	Within 48 hours of a qualifying event[2]

[1] Most BMPs must be inspected weekly; those identified below must be inspected more frequently.

[2] Inspections are required during scheduled site operating hours.

[3] Inspections are required during scheduled site operating hours regardless of the amount of precipitation on any given day.

7.6.1 Routine Observations and Inspections

Routine site inspections and visual monitoring are necessary to ensure that the project is in compliance with the requirements of the Construction General Permit.

7.6.1.1 Routine BMP Inspections

Inspections of BMPs are conducted to identify and record:

- BMPs that are properly installed;
- BMPs that need maintenance to operate effectively;
- BMPs that have failed; or
- BMPs that could fail to operate as intended.

7.6.1.2 Non-Stormwater Discharge Observations

Each drainage area will be inspected for the presence of or indications of prior unauthorized and authorized non-stormwater discharges. Inspections will record:

- Presence or evidence of any non-stormwater discharge (authorized or unauthorized);
- Pollutant characteristics (floating and suspended material, sheen, discoloration, turbidity, odor, etc.); and
- Source of discharge.

7.6.2 Rain-Event Triggered Observations and Inspections

Visual observations of the site and inspections of BMPs are required prior to a qualifying rain event; following a qualifying rain event, and every 24-hour period during a qualifying rain event. Pre-rain inspections will be conducted after consulting NOAA and determining that a

precipitation event with a 50 percent or greater probability of precipitation has been predicted on the Forecast Weather Table Interface.

7.6.2.1 Visual Observations Prior to a Forecasted Qualifying Rain Event

Within 48 hours prior to a qualifying event, a stormwater visual monitoring site inspection will include observations of the following locations:

- Stormwater drainage areas to identify any spills, leaks, or uncontrolled pollutant sources;
- BMPs to identify if they have been properly implemented;
- Any stormwater storage and containment areas to detect leaks and ensure maintenance of adequate freeboard.

BMP inspections and visual monitoring will be triggered by a NOAA prediction of rain in the project area.

BMP inspections and visual monitoring will be triggered by a NOAA quantitative predicted forecast (QPF) that indicates ½-inch or more of rain will occur in the project area.

7.6.2.2 BMP Inspections During an Extended Storm Event

During an extended rain event BMP inspection will be conducted to identify and record:

- BMPs that are properly installed;
- BMPs that need maintenance to operate effectively;
- BMPs that have failed; or
- BMPs that could fail to operate as intended.

If the construction site is not accessible during the rain event, the visual inspections shall be performed at all relevant outfalls, discharge points, downstream locations. The inspections should record any projected maintenance activities.

7.6.2.3 Visual Observations Following a Qualifying Rain Event

Within 48 hours following a qualifying rain event (0.5 inches of rain), a stormwater visual monitoring site inspection is required to observe:

- Stormwater drainage areas to identify any spills, leaks, or uncontrolled pollutant sources;
- BMPs to identify if they have been properly designed, implemented, and effective;
- Need for additional BMPs;
- Any stormwater storage and containment areas to detect leaks and ensure maintenance of adequate freeboard; and
- Discharge of stored or contained rainwater.

7.6.3 Visual Monitoring Procedures

Visual monitoring shall be conducted by the QSP or staff trained by and under the supervision of the QSP.

The name(s) and contact number(s) of the site visual monitoring personnel are listed below and their training qualifications are provided in Appendix K.

Assigned inspector:

Alternate inspector:

Stormwater observations shall be documented on the *Visual Inspection Field Log Sheet* (see Appendix Q "Example Forms"). BMP inspections shall be documented on the site-specific BMP inspection checklist. Any photographs used to document observations will be referenced on stormwater site inspection report and maintained with the Monitoring Records in Appendix P.

The QSP shall within 24 hours of being developed submit copies of the completed inspection report to Jose Villareal.

The completed reports will be kept in Appendix P "Monitoring Records".

7.6.4 Visual Monitoring Follow-Up and Reporting

Correction of deficiencies identified by the observations or inspections, including required repairs or maintenance of BMPs, shall be initiated and completed as soon as possible.

If identified deficiencies require design changes, including additional BMPs, the implementation of changes will be initiated within 72 hours of identification and be completed as soon as possible. When design changes to BMPs are required, the SWPPP shall be amended to reflect the changes.

Deficiencies identified in site inspection reports and correction of deficiencies will be tracked on the *Inspection Field Log Sheet* or *BMP Inspection Report* and shall be submitted to the QSP and shall be kept in Appendix P "Monitoring Records".

The QSP shall within 24 hours of being developed submit copies of the completed *Inspection Field Log Sheet* or *BMP Inspection Report* with the corrective actions to Jose Villareal

Results of visual monitoring must be summarized and reported in the Annual Report.

7.6.5 Visual Monitoring Locations

The inspections and observations identified in Sections 7.6.1 and 7.6.2 will be conducted at the locations identified in this section.

BMP locations are shown on the Site Maps in SWPPP Appendix B.

There is 1 drainage area on the project site staging areas, and storage areas. The drainage area is shown on the Site Map in Appendix B and Table 7.2 identifies the drainage area.

Table 7.2 Site Drainage Areas

Location No.	Location
1	Southeast Corner of Project

- There are no stormwater storage or containment area(s) are on the project site.

Table 7.3 Stormwater Storage and Containment Areas

Location No.	Location
1	Lot 2

There is one (1) discharge location) on the project site. Site stormwater discharge location(s) are shown on the Site Maps in Appendix B and Table 7.4 identifies each stormwater discharge location.

Table 7.4 Site Stormwater Discharge Locations

Location No.	Location
1	Southeast Corner of Project

7.7 Water Quality Sampling and Analysis

7.7.1 Sampling and Analysis Plan for Non-Visible Pollutants in Stormwater Runoff Discharges

This Sampling and Analysis Plan for Non-Visible Pollutants describes the sampling and analysis strategy and schedule for monitoring non-visible pollutants in stormwater runoff discharges from the project site.

Sampling for non-visible pollutants will be conducted when (1) a breach, leakage, malfunction, or spill is observed; and (2) the leak or spill has not been cleaned up prior to the rain event; and (3) there is the potential for discharge of non-visible pollutants to surface waters or drainage system.

The following construction materials, wastes, or activities, as identified in Section 2.6, are potential sources of non-visible pollutants to stormwater discharges from the project. Storage, use, and operational locations are shown on the Site Maps in Appendix B.

- Vehicle and equipment maintenance
- Utility operations
- Saw cutting, grading, and paving
- Concrete operations
- Grading and drainage operations;
- Material use and waste discharge
- Sanitary waste
- Painting products
- Spills and any authorized non-stormwater discharge described above that does not meet the conditions of the Permit

The following existing site features, as identified in Section 2.6, are potential sources of non-visible pollutants to stormwater discharges from the project. The site is a former Tire Factory with contaminated soil - See Soil Management & Transportation plan in Appendix S.

The following soil amendments have the potential to change the chemical properties, engineering properties, or erosion resistance of the soil and will be used on the project site. Locations of soil amendment application are shown on the Site Maps in Appendix B.

- None

The project has the potential to receive stormwater run-on from the following locations with the potential to contribute non-visible pollutants to stormwater discharges from the project. Locations of such run-on to the project site are shown on the Site Maps in Appendix B.

- None

7.7.1.1 Sampling Schedule

Samples for the potential non-visible pollutant(s) and a sufficiently large unaffected background sample shall be collected during the first two hours of discharge from rain events that result in a sufficient discharge for sample collection. Samples shall be collected during the site's scheduled hours and shall be collected regardless of the time of year and phase of the construction.

Collection of discharge samples for non-visible pollutant monitoring will be triggered when any of the following conditions are observed during site inspections conducted prior to or during a rain event.

- Materials or wastes containing potential non-visible pollutants are not stored under watertight conditions. Watertight conditions are defined as (1) storage in a watertight container, (2) storage under a watertight roof or within a building, or (3) protected by temporary cover and containment that prevents stormwater contact and runoff from the storage area.
- Materials or wastes containing potential non-visible pollutants are stored under watertight conditions, but (1) a breach, malfunction, leakage, or spill is observed, (2) the leak or spill is not cleaned up prior to the rain event, and (3) there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system.
- A construction activity, including but not limited to those in Section 2.6, with the potential to contribute non-visible pollutants (1) was occurring during or within 24 hours prior to the rain event, (2) BMPs were observed to be breached, malfunctioning, or improperly implemented, and (3) there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system.
- Soil amendments that have the potential to change the chemical properties, engineering properties, or erosion resistance of the soil have been applied, and there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system.
- Stormwater runoff from an area contaminated by historical usage of the site has been observed to combine with stormwater runoff from the site, and there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system.

7.7.1.2 Sampling Locations

Sampling locations are based on proximity to planned non-visible pollutant storage, occurrence or use, accessibility for sampling, and personnel safety. Planned non-visible pollutant sampling locations are shown on the Site Maps in Appendix B and include the locations identified in Tables 7.5 through 7.9.

Sampling location(s) on the project site and the contractor's yard have been identified for the collection of samples of runoff from planned material and waste storage areas and areas where non-visible pollutant producing construction activities are planned.

Table 7.5 Non-Visible Pollutant Sample Locations – Contractors' Yard

Sample Location Number	Sample Location Description	Sample Location Latitude and Longitude (Decimal Degrees)
SP-1	SOUTHEAST	33°46'33.8"N 117°57'26.4" W

There are no sampling locations have been identified for the collection of samples of runoff from drainage areas where soil amendments will be applied that have the potential to affect water quality.

Table 7.6 Non-Visible Pollutant Sample Locations – Soil Amendment Areas

Sample Location Number	Sample Location	Sample Location Latitude and Longitude (Decimal Degrees)
	N/A	

No locations for sampling locations have been identified for the collection of samples of runoff from drainage areas contaminated by historical usage of the site.

Table 7.7 Non-Visible Pollutant Sample Locations – Areas of Historical Contamination

Sample Location Number	Sample Location	Sample Location Latitude and Longitude (Decimal Degrees)
	N/A	

One (1) sampling location(s) has been identified for the collection of an uncontaminated sample of runoff as a background sample for comparison with the samples being analyzed for non-visible pollutants. This location(s) was selected such that the sample will not have come in contact with the operations, activities, or areas identified in Section 7.7.1 or with disturbed soils areas.

Table 7.8 Non-Visible Pollutant Sample Locations – Background (Unaffected Sample)

Sample Location Number	Sample Location	Sample Location Latitude and Longitude (Decimal Degrees)
	N/A	

There are no sampling locations have been identified for the collection of samples of run-on to the project site. Run-on from these locations has the potential to combine with discharges from the site being sampled for non-visible pollutants. These samples are intended to identify potential sources of non-visible pollutants that originate off the project site.

Table 7.9 Non-Visible Pollutant Sample Locations – Site Run-On

Sample Location Number	Sample Location	Sample Location Latitude and Longitude (Decimal Degrees)
	N/A – No Run -On	

If a stormwater visual monitoring site inspection conducted prior to or during a storm event identifies the presence of a material storage, waste storage, operations area with spills, or the potential for the discharge of non-visible pollutants to surface waters or a storm drain system that is at a location not listed above and has not been identified on the Site Maps, sampling locations will be selected by the QSP using the same rationale as that used to identify planned locations. Non-visible pollutant sampling locations shall be identified by the QSP on the pre-rain event inspection form and/or REAP prior to a forecasted qualifying rain event.

7.7.1.3 Monitoring Preparation

Non-visible pollutant samples will be collected by:

Contractor ☒ Yes ☐ No

Consultant ☐ Yes ☐ No

Laboratory ☐ Yes ☐ No

Samples on the project site will be collected by the following contractor sampling personnel:

Name/Telephone Number:	Joe Zucker	858-342-9929
Alternate(s)/Telephone Number:	TBD	

An adequate stock of monitoring supplies and equipment for monitoring non-visible pollutants will be available on the project site prior to a sampling event. Monitoring supplies and equipment will be stored in a cool temperature environment that will not come into contact with rain or direct sunlight. Sampling personnel will be available to collect samples in accordance

with the sampling schedule. Supplies maintained at the project site will include, but are not limited to, clean powder-free nitrile gloves, sample collection equipment, coolers, appropriate number and volume of sample bottles, identification labels, re-sealable storage bags, paper towels, personal rain gear, ice, and *Effluent Sampling Field Log Sheets* and Chain of Custody (CoC) forms, which are provided in Appendix Q "Example Forms".

7.7.1.4 Analytical Constituents

Table 7.10 lists the specific sources and types of potential non-visible pollutants on the project site and the water quality indicator constituent(s) for that pollutant.

Table 7.10 Potential Non-Visible Pollutants and Water Quality Indicator Constituents

Pollutant Source	Pollutant	Water Quality Indicator Constituent
Asphalt paving	curbs Asphalt concrete, cold mix, asphalt emulsions	Visually observable, no samples required
Cleaning products Metals, Synthetic	Synthetic Organics Solvents, TSP	VOCs Phosphate
Stored Vehicle Fluids pH	Battery acid in stored batteries, gasoline	pH
Sanitary Waste Bacteria, pathogens,	Bacteria, pathogens, Sanitary waste	Nutrients, BOD, Total/Fecal
Grading/Earthwork/Demolition	Gypsum / Lime amendments, Contaminated soil	pH, constituents specific to known contaminants, check with Lab
Concrete/Masonry Work/Material Use	Curing compounds, sealant (methyl methacrylate)	SVOC, VOCs, pH
Liquid waste Metals, Synthetic Organics	waste Metals, Synthetic Organics	constituents specific to known contaminants, check with Lab

7.7.1.5 Sample Collection

Samples of discharge shall be collected at the designated non-visible pollutant sampling locations shown on the Site Maps in Appendix B or in the locations determined by observed breaches, malfunctions, leakages, spills, operational areas, soil amendment application areas, and historical site usage areas that triggered the sampling event.

Grab samples shall be collected and preserved in accordance with the methods identified in the Table 7.11, "Sample Collection, Preservation and Analysis for Monitoring Non-Visible Pollutants" provided in Section 7.7.1.6. Only the QSP, or personnel trained in water quality sampling under the direction of the QSP shall collect samples.

Sample collection and handling requirements are described in Section 7.7.7.

7.7.1.6 Sample Analysis

Samples shall be analyzed using the analytical methods identified in the Table 7.11.

Samples will be analyzed by:

Laboratory Name:	Test America Laboratories
Street Address:	17461 Derian Ave #100
City, State Zip:	Irvine, CA 92614
Telephone Number:	(949)-261-1022
Point of Contact:	Front Desk

Samples will be delivered to the laboratory by:

Driven by Contractor or Consultant	☒	Yes	☐	No
Picked up by Laboratory Courier	☒	Yes	☐	No
Shipped	☐	Yes	☐	No

7.7.1.7 Data Evaluation and Reporting

The QSP shall complete an evaluation of the water quality sample analytical results.

Runoff/downgradient results shall be compared with the associated upgradient/unaffected results and any associated run-on results. Should the runoff/downgradient sample show an increased level of the tested analyte relative to the unaffected background sample, which cannot be explained by run-on results, the BMPs, site conditions, and surrounding influences shall be assessed to determine the probable cause for the increase.

As determined by the site and data evaluation, appropriate BMPs shall be repaired or modified to mitigate discharges of non-visible pollutant concentrations. Any revisions to the BMPs shall be recorded as an amendment to the SWPPP.

Table 7.11 Sample Collection, Preservation and Analysis for Monitoring Non-Visible Pollutants

Constituent	Analytical Method	Minimum Sample Volume	Sample Containers	Sample Preservation	Reporting Limit	Maximum Holding Time
pH	EPA 1501	500 ml	PE or glass	4 degrees C	0.1 pH Unit	15 minutes
OCPs	EPA-8081	1 liter	PE or glass	4 degrees C	3 ppb	7 days
Pesticides/PCBs	PA 8081/8082	1 li2zter	PE or glass	4 degrees C	Per Lab	Per Lab
Phosphate	EPA 365.3	1 liter	PE or glass	4 degrees C	0.1 mg/l	2 days
Nitrate	EPA 300.0	1 liter	PE or glass	4 degrees C	1 mg/L	2 days
VOCs-Solvents	EPA 8260B	3x40 ml	VOA-glass	Store @ 4 degrees C HCI to pH<2	1 mg/L	14 days
COD	EPA 410.4	1x250 ml	Glass-Amber	Store @ 4 degrees C HCI to pH<2	5 mg/L	28 days
SVOCs	EPA 82060B	3x40 ml	Glass-Amber	Store @ 4 degrees C	10 pg/L	7 days
Metals, (Al, Sb, As, Ba, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, Se, Na, Th, Va, Zn	EPA 6010B/7470A	1/250 ml	Polypropylene	Store @ 4 degrees C, HN03 TO pH<2	01. mg/L	6 months

Notes:

C – Degrees Celsius µg/L – Micrograms per Liter

BOD – Biochemical Oxygen Demand mL – Milliliter

COD – Chemical Oxygen Demand PCB – Polychlorinated Biphenyl

DO – Dissolved Oxygen SVOC – Semi-Volatile Organic Compound

EPA – Environmental Protection Agency SM – Standard Method

HCl – Hydrochloric Acid H2SO4 – Sulfuric Acid

HNO3 – Nitric Acid VOA – Volatile Organic Analysis

L – Liter VOC – Volatile Organic Compound

The General Permit prohibits the storm water discharges that contain hazardous substances equal to or in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4. The results of any non-stormwater discharge results that indicate the presence of a hazardous substance in excess of established reportable quantities shall be immediately reported to the Regional Water Board and other agencies as required by 40 C.F.R. §§ 117.3 and 302.4. Results of non-visible pollutant monitoring shall be reported in the Annual Report.

7.7.2 Sampling and Analysis Plan for pH and Turbidity in Stormwater Runoff Discharges

Sampling and analysis of runoff for pH and turbidity is required for this project. This Sampling and Analysis Plan describes the strategy for monitoring turbidity and pH levels of stormwater runoff discharges from the project site and run-on that may contribute to an exceedance of a Numeric Action Level (NAL)

Samples for pH and turbidity will be collected at all discharge points where stormwater is discharged off-site.

7.7.2.1 Sampling Schedule

Stormwater runoff samples shall be collected for pH and turbidity from each day of a qualifying rain event that results in a discharge from the project site. A minimum of three samples will be collected per day of discharge during a qualifying event. Samples should be representative of the total discharge from the project each day of discharge during the qualifying event. Typically, representative samples will be spaced in time throughout the daily discharge event.

Stored or collected water from a qualifying storm event when discharged shall be tested for turbidity and pH. Stored or collected water from a qualifying event may be sampled at the point it is released from the storage or containment area or at the site discharge location.

Run-on samples shall be collected whenever the QSP identifies that run-on has the potential to contribute to an exceedance of a NAL

7.7.2.2 Sampling Locations

Sampling locations are based on the site runoff discharge locations and locations where run-on enters the site, accessibility for sampling, and personnel safety. Planned pH and turbidity sampling locations are shown on the Site Maps in Appendix B and include the locations identified in Table 7.12

>3 sampling location(s) based on stage of construction at the project site and the contractors yard have been identified for the collection of runoff samples. Table 7.12 also provides n estimate of the site's area that drains to each location.

Table 7.12 Turbidity and pH Runoff Sample Locations

Sample Location Number	Sample Location	Estimate of Site (%)
	N/A - RISK 1 SITE	

No sampling locations have been identified for the collection of run-on samples where the run-on has the potential to contribute to an exceedance of an NAL or a Receiving Water Monitoring Trigger. Table 7.13 identifies the run-on sample locations.

Table 7.13 Turbidity and pH Run-On Sample Locations

Sample Location Number	Sample Location	Sample Location Latitude and Longitude (Decimal Degrees)
	N/A – No Run-On	

The project does not receive run-on with the potential to exceed NALs or Receiving Water Monitoring Triggers.

7.7.2.3 Monitoring Preparation

Turbidity and pH samples will be collected and analyzed by:

Contractor ☐ Yes ☐ No

Consultant ☐ Yes ☐ No

Laboratory ☐ Yes ☐ No

Samples on the project site will be collected by the following contractor sampling personnel:

Name/Telephone Number:		
Alternate(s)/Telephone Number:		

An adequate stock of monitoring supplies and equipment for monitoring turbidity and will be available on the project site prior to a sampling event. Monitoring supplies and equipment will be stored in a cool temperature environment that will not come into contact with rain or direct sunlight. Sampling personnel will be available to collect samples in accordance with the sampling schedule. Supplies maintained at the project site will include, but are not limited to, field meters, extra batteries, clean powder-free nitrile gloves, sample collection equipment, appropriate sample containers, paper towels, personal rain gear, and *Effluent Sampling Field Log Sheets* and CoC forms provided in Appendix Q "Example Forms".

The contractor will obtain and maintain the field-testing instruments, as identified in Section 7.7.2.6, for analyzing samples in the field by contractor sampling personnel.

Samples on the project site will be collected by the following: Environmental Consultant/QSP/Designated Alternate/Contractor

Company Name:

Street Address:

City, State, Zip:

Telephone Number:

Point of Contact:

Name of Sampler(s):

Name of Alternate(s):

The QSP or his/her designee will contacted 24 hours prior to a predicted rain event or for an unpredicted event, as soon as a rain event begins to ensure that adequate sample collection personnel, supplies for monitoring pH and turbidity are available and will be mobilized to collect samples on the project site in accordance with the sampling schedule.

7.7.2.4 Field Parameters

Samples shall be analyzed for the constituents indicated in the Table 7.14.

Table 7.14 Sample Collection and Analysis for Monitoring Turbidity and pH

Parameter	Test Method	Minimum Sample Volume (1)	Sample Collection Container Type	Detection Limit (minimum)
Turbidity	Field meter/probe with calibrated portable instrument	500 mL	Polypropylene or glass (Do not collect in meter sample cells)	1 NTU
pH	Field meter/probe with calibrated portable instrument or calibrated pH test kit	100 mL	Polypropylene	0.2 pH units

Notes: [1] Minimum sample volume recommended. Specific volume requirements will vary by instrument; check instrument manufacturer instructions.

L – Liter
mL – Milliliter
NTU – Nephelometric Turbidity Unit

7.7.2.5 Sample Collection

Samples of discharge shall be collected at the designated runoff and run-on sampling locations shown on the Site Maps in Appendix B. Run-on samples shall be collected within close proximity of the point of run-on to the project.

Only personnel trained in water quality sampling and field measurements working under the direction of the QSP shall collect samples.

Sample collection and handling requirements are described in Section 7.7.7.

7.7.2.6 Field Measurements

Samples collected for field analysis, collection, analysis and equipment calibration shall be in accordance with the field instrument manufacturer's specifications.

Immediately following collection, samples for field analysis shall be tested in accordance with the field instrument manufacturer's instructions and results recorded on the *Effluent Sampling Field Log Sheet*.

The field instrument(s) listed in Table 7.15 will be used to analyze the following constituents:

Table 7.15 Field Instruments

Field Instrument (Manufacturer and Model)	Constituent
TBD	pH
TBD	Turbidity

The manufacturers' instructions are included in Appendix R "Field Meter Instructions". Field sampling staff shall review the instructions prior to each sampling event and follow the instructions in completing measurement of the samples.

- The instrument(s) shall be maintained in accordance with manufacturer's instructions.
- The instrument(s) shall be calibrated before each sampling and analysis event.
- Maintenance and calibration records shall be maintained with the SWPPP.

The QSP may authorize alternate equipment provided that the equipment meets the Construction General Permit's requirements and the manufacturers' instructions for calibration and use are added to Appendix R "Field Meter Instructions".

7.7.2.7 Data Evaluation and Reporting

Immediately upon completing the measurements for the sampling event, provide the *Effluent Sampling Field Log Sheets* to the QSP for evaluation.

Numeric Action Levels

This project is subject to NALs for pH and turbidity (Table 7.16). Compliance with the NAL for pH and turbidity is based on a daily average. Upon receiving the field log sheets, the QSP shall immediately calculate the arithmetic average of the turbidity samples, and the logarithmic average of the pH samples to determine if the NALs, shown in the table below, have been exceeded.

Table 7.16 Numeric Action Levels

Parameter	Unit	Daily Average
pH	pH units	Lower NAL = 6.5 Upper NAL = 8.5
Turbidity	NTU	250 NTU

The QSP shall within 24 hours of the sample collection submit copies of the completed *Effluent Sampling Field Log Sheets* to Jose Villareal

In the event that the pH or turbidity NAL is exceeded, the QSP shall immediately notify Huey Nguyen and investigate the cause of the exceedance and identify corrective actions.

Exceedances of NALs shall be electronically reported to the State Water Board by Huey Nguyen through the SMARTs system within 10 days of the conclusion of the storm event. If requested by the Regional Board, a NAL Exceedance report will be submitted. The NAL Exceedance Report must contain the following information:

- Analytical method(s), method reporting unit(s), and MDL(s) of each parameter;
- Date, place, time of sampling, visual observation, and/or measurements, including precipitation; and
- Description of the current BMPs associated with the sample that exceeded the NAL and the proposed corrective actions taken.

Receiving Water Monitoring Triggers

This project is not subject to Receiving Water Monitoring Triggers because it does not have a direct discharge to the receiving water.

7.7.3 Sampling and Analysis Plan for pH, Turbidity, and SSC in Receiving Water

This project is not subject to Receiving Water Monitoring.

7.7.4 Sampling and Analysis Plan for Non-Stormwater Discharges

This Sampling and Analysis Plan for non-stormwater discharges describes the sampling and analysis strategy and schedule for monitoring pollutants in authorized and unauthorized non-stormwater discharges from the project site in accordance with the requirements of the Construction General Permit.

Sampling of non-stormwater discharges will be conducted when an authorized or unauthorized non-stormwater discharge is observed discharging from the project site. In the event that non-stormwater discharges run-on to the project site from offsite locations, and this run-on has the potential to contribute to a violation of a NAL, the run-on will also be sampled.

These activities are listed in Section 200.5

7.7.4.1 Sampling Schedule

Samples of authorized or unauthorized non-stormwater discharges shall be collected when they are observed.

7.7.4.2 Sampling Locations

Samples shall be collected from the discharge point of the construction site where the non-stormwater discharge is running off the project site. Site discharge locations are shown on the Site Maps in SWPPP Appendix B and include the locations identified below.

One (1) sampling location(s) on the project site and the contractor's yard have been identified where non-stormwater discharges may runoff from the project site. (Table 7.20)

Table 7.20 Non-stormwater Discharge Sample Locations

Sample Location Number	Sample Location	Sample Location Latitude and Longitude (Decimal Degrees)
1	South-East Corner of Project	
	Additional Locations determined by QSP based on site conditions	

There are no sampling locations that have been identified for the collection of non-stormwater discharges that run-on to the project site (Table 7.21).

Table 7.21 Non-stormwater Run-on Sample Locations

Sample Location Number	Sample Location	Sample Location Latitude and Longitude (Decimal Degrees)
N/A		

7.7.4.3 Monitoring Preparation

Non-stormwater discharge samples will be collected by:

Contractor ☒ Yes ☐ No

Consultant ☒ Yes ☐ No

Laboratory ☐ Yes ☐ No

Samples on the project site will be collected by the following contractor sampling personnel:

Name/Telephone Number:		
Alternate(s)/Telephone Number:		

An adequate stock of monitoring supplies and equipment for monitoring non-stormwater discharges will be available on the project site. Monitoring supplies and equipment will be stored in a cool temperature environment that will not come into contact with rain or direct sunlight. Personnel trained in sampling will be available to collect samples in accordance with the sampling schedule. Supplies maintained at the project site will include, but are not limited to, clean powder-free nitrile gloves, sample collection equipment, field meters, coolers, appropriate number and volume of sample bottles, identification labels, re-sealable storage bags, paper towels, personal rain gear, ice, and *Effluent Sampling Field Log Sheets* and CoC forms provided in Appendix Q "Example Forms".

The contractor will obtain and maintain the field-testing instruments, as identified in Section 7.7.2, for analyzing samples in the field by contractor sampling personnel.

Samples on the project site will be collected by the following environmental consultant/individual:

Company Name: Joe Zucker Stormwater Alliance

Street Address:

City, State Zip:

Telephone Number: 858-342-9929

Point of Contact: Joe Zucker

Name of Sampler(s):

Name of Alternate(s):

The QSP or his/her designee will contact consultant 24 hours prior to a planned non-stormwater discharge or as soon as an unplanned non-stormwater discharge is observed to ensure that adequate sample collection personnel, supplies for non-stormwater discharge monitoring are available and will be mobilized to collect samples on the project site in accordance with the sampling schedule.

7.7.4.4 Analytical Constituents

All non-stormwater discharges that flow through a disturbed area shall, at minimum, be monitored for turbidity.

All non-stormwater discharges that flow through an area where they are exposed to pH altering materials shall be monitored for pH.

The QSP shall identify additional pollutants to be monitored for each non-stormwater discharge incident based on the source of the non-stormwater discharge. If the source of an unauthorized non-stormwater discharge is not known, monitoring for pH, turbidity, MBAS, TOC, and residual chlorine or chloramines is recommended to help identify the source of the discharge.

Non-stormwater discharge run-on shall be monitored, at minimum, for pH and turbidity. The QSP shall identify additional pollutants to be monitored for each non-stormwater discharge incident based on the source of the non-stormwater discharge. If the source of an unauthorized non-stormwater discharge is not known, monitoring for pH, turbidity, MBAS, TOC, and residual chlorine or chloramines is recommended to help identify the source of the discharge.

Table 7.22 lists the specific sources and types of potential non-visible pollutants on the project site and the water quality indicator constituent(s) for that pollutant.

Table 7.22 Potential Non-Stormwater Discharge Pollutants and Water Quality Indicator Constituents

Pollutant Source	Pollutant	Water Quality Indicator Constituent
Disturbed Areas	Sediment	Turbidity
Concrete Work	pH	pH
Sanitary Waste	Bacteria, pathogens, sanitary wastes	Nutrients, BOD, Total/Fecal Matter
Grading and Earthwork	Gypsum/Lime amendments, Contaminated Soil	pH, Constituents specific to known contaminants, check with lab

7.7.4.5 Sample Collection

Samples shall be collected at the discharge locations where the non-stormwater discharge is leaving the project site. Potential discharge locations are shown on the Site Maps in Appendix B and identified in Section 7.7.4.2.

Grab samples shall be collected and preserved in accordance with the methods identified in Table 7.23. Only personnel trained in water quality sampling under the direction of the QSP shall collect samples.

Sample collection and handling requirements are described in Section 7.7.7.

7.7.4.6 Sample Analysis

Samples shall be analyzed using the analytical methods identified in Table 7.23.

7.7.4.7 Data Evaluation and Reporting

The QSP shall complete an evaluation of the water quality sample analytical results. Turbidity and pH results shall be evaluated for compliance with NALs as identified in Section 7.7.2.7.

Runoff results shall also be evaluated for the constituents suspected in the non-stormwater discharge. Should the runoff sample indicate the discharge of a pollutant which cannot be explained by run-on results, the BMPs, site conditions, and surrounding influences shall be assessed to determine the probable cause for the increase.

As determined by the site and data evaluation, appropriate BMPs shall be repaired or modified to mitigate discharges of non-visible pollutant concentrations. Any revisions to the BMPs shall be recorded as an amendment to the SWPPP.

Non-storm water discharge results shall be submitted with the Annual Report.

The General Permit prohibits the non-storm water discharges that contain hazardous substances equal to or in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4. The results of any non-stormwater discharge results that indicate the presence of a hazardous substance in excess of established reportable quantities shall be immediately reported to the Regional Water Board.

Table 7.22 Sample Collection, Preservation and Analysis for Monitoring Pollutants in Non-Stormwater Discharges

Constituent	Analytical Method	Minimum Sample Volume	Sample Bottle	Sample Preservation	Reporting Limit	Maximum Holding Time
VOCs-Solvents	EPA 8260B	3 x 40 mL	VOA-glass	Store at 4˚C, HCl to pH<2	1 µg/L	14 days
SVOCs	EPA 8270C	1 x 1 L	Glass-Amber	Store at 4˚C	10 µg/L	7 days
Pesticides/PCBs	EPA 8081A/8082	1 x 1 L	Glass-Amber	Store at 4˚C	01 µg/L	7 days
Herbicides	EPA 8151A	1 x 1 L	Glass-Amber	Store at 4˚C	Check Lab	7 days
BOD	EPA 405.1	1 x 500 mL	Polypropylene	Store at 4˚C	1 mg/L	48 hours
COD	EPA 410.4	1 x 250 mL	Glass-Amber	Store at 4˚C, H_2SO_4 to pH<2	5 mg/L	28 days
DO	SM 4500-O G	1 x 250 mL	Glass-Amber	Store at 4˚C	Check Lab	8 hours
pH	Field test with calibrated portable instrument	1 x 100 mL	Polypropylene	None	Unit less	15 minutes
Alkalinity	SM 2320B	1 x 250 mL	Polypropylene	Store at 4˚C	1 mg/L	14 days
Metals (Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, Se, Na, Th, Va, Zn)	EPA 6010B/7470A	1 x 250 mL	Polypropylene	Store at 4˚C, HNO_3 to pH<2	0.1 mg/L	6 months
Metals (Chromium VI)	EPA 7199	1 x 500 mL	Polypropylene	Store at 4˚C	1.0µg/L	24 hours

Notes:

°C –	Degrees Celsius	µg/L –	Micrograms per Liter
BOD –	Biochemical Oxygen Demand	mL –	Milliliter
COD –	Chemical Oxygen Demand	PCB –	Polychlorinated Biphenyl
DO –	Dissolved Oxygen	SVOC –	Semi-Volatile Organic Compound
EPA –	Environmental Protection Agency	SM –	Standard Method
HCl –	Hydrochloric Acid	H_2SO_4 –	Sulfuric Acid
HNO_3 –	Nitric Acid	VOA –	Volatile Organic Analysis
L –	Liter	VOC –	Volatile Organic Compound
mg/L –	Milligrams per Liter		

7.7.5 Safety and Analysis Plan for Other Pollutants Required by the RWQCB

The RWQCB has not specified monitoring for additional pollutants.

7.7.6 Training of Sampling Personnel

Sampling personnel shall be trained to collect, maintain, and ship samples in accordance with the Surface Water Ambient Monitoring program (SWAMP) 2008 Quality Assurance Program Plan (Qasr). Training records of designated contractor sampling personnel are provided in Appendix K.

The stormwater sampler(s) and alternate(s) have received the following stormwater sampling training:

Name: Joe Zucker	**Training**

The stormwater sampler(s) and alternates have the following stormwater sampling experience:

Name	**Experience**

7.7.7 Sample Collection and Handling

7.7.7.1 Sample Collection

Samples shall be collected at the designated sampling locations shown on the Site Maps and listed in the preceding sections. Samples shall be collected, maintained and shipped in accordance with the SWAMP 2008 Quality Assurance Program Plan (QAPrP).

Grab samples shall be collected and preserved in accordance with the methods identified in preceding sections.

To maintain sample integrity and prevent cross-contamination, sample collection personnel shall follow the protocols below.

- Collect samples (for laboratory analysis) only in analytical laboratory-provided sample containers;
- Wear clean, powder-free nitrile gloves when collecting samples;
- Change gloves whenever something not known to be clean has been touched;
- Change gloves between sites;
- Decontaminate all equipment (e.g., bucket, tubing) prior to sample collection using a trisodium phosphate water wash, distilled water rinse, and final rinse with distilled water. (Dispose of wash and rinse water appropriately [i.e., do not discharge to storm drain or receiving water]). Do not decontaminate laboratory provided sample containers;
- Do not smoke during sampling events;

- Never sample near a running vehicle;
- Do not park vehicles in the immediate sample collection area (even non-running vehicles);
- Do not eat or drink during sample collection; and
- Do not breathe, sneeze, or cough in the direction of an open sample container.

The most important aspect of grab sampling is to collect a sample that represents the entire runoff stream. Typically, samples are collected by dipping the collection container in the runoff flow paths and streams as noted below.

i. For small streams and flow paths, simply dip the bottle facing upstream until full.
ii. For larger stream that can be safely accessed, collect a sample in the middle of the flow stream by directly dipping the mouth of the bottle. Once again making sure that the opening of the bottle is facing upstream as to avoid any contamination by the sampler.
iii. For larger streams that cannot be safely waded, pole-samplers may be needed to safely access the representative flow.
iv. Avoid collecting samples from ponded, sluggish or stagnant water.
v. Avoid collecting samples directly downstream from a bridge as the samples can be affected by the bridge structure or runoff from the road surface.

Note, that depending upon the specific analytical test, some containers may contain preservatives. These containers should **never** be dipped into the stream but filled indirectly from the collection container.

SSC samples should be taken as a normal grab sample, where the bottle is submerged facing upstream and filled. SSC samples need to be collected in a separate bottle because the analysis requires the entire volume of the bottle. Do not collect in a larger container and partition into the laboratory sample container.

7.7.7.2 Sample Handling

Turbidity and pH measurements must be conducted immediately. Do not store turbidity or pH samples for later measurement.

Samples for laboratory analysis must be handled as follows. Immediately following sample collection:

- Cap sample containers;
- Complete sample container labels;
- Sealed containers in a re-sealable storage bag;
- Place sample containers into an ice-chilled cooler;
- Document sample information on the *Effluent Sampling Field Log Sheet*; and
- Complete the CoC.

All samples for laboratory analysis must be maintained between 0-6 degrees Celsius during delivery to the laboratory. Samples must be kept on ice, or refrigerated, from sample collection through delivery to the laboratory. Place samples to be shipped inside coolers with ice. Make sure the sample bottles are well packaged to prevent breakage and secure cooler lids with packaging tape.

Ship samples that will be laboratory analyzed to the analytical laboratory right away. Hold times are measured from the time the sample is collected to the time the sample is analyzed. The General Permit requires that samples be received by the analytical laboratory within 48 hours of the physical sampling (unless required sooner by the analytical laboratory).

Laboratory Name:	Pace Analytical
Address:	4100 Atlas Court
City, State Zip:	Bakersfield, CA 93308
Telephone Number:	(800) 878-911
Point of Contact:	Front Desk

7.7.7.3 Sample Documentation Procedures

All original data documented on sample bottle identification labels, *Effluent Sampling Field Log Sheet*, and CoCs shall be recorded using waterproof ink. These shall be considered accountable documents. If an error is made on an accountable document, the individual shall make corrections by lining through the error and entering the correct information. The erroneous information shall not be obliterated. All corrections shall be initialed and dated.

Duplicate samples shall be identified consistent with the numbering system for other samples to prevent the laboratory from identifying duplicate samples. Duplicate samples shall be identified in the Effluent Sampling Field Log Sheet.

Sample documentation procedures include the following:

Sample Bottle Identification Labels: Sampling personnel shall attach an identification label to each sample bottle. Sample identification shall uniquely identify each sample location.

Field Log Sheets: Sampling personnel shall complete the *Effluent Sampling Field Log Sheet* and *Receiving Water Sampling Field Log Sheet* for each sampling event, as appropriate.

Chain of Custody: Sampling personnel shall complete the CoC for each sampling event for which samples are collected for laboratory analysis. The sampler will sign the CoC when the sample(s) is turned over to the testing laboratory or courier.

7.8 Active Treatment System Monitoring

This project does not require a project specific Sampling and Analysis Plan for an ATS because deployment of an ATS is not planned.

7.9 Bioassessment Monitoring

This project is not subject to bioassessment monitoring because it is not a Risk Level 3 project.

7.10 Watershed Monitoring Option

This project is not participating in a watershed monitoring option.

7.11 Quality Assurance and Quality Control

An effective Quality Assurance and Quality Control (QA/QC) plan shall be implemented as part of the CSMP to ensure that analytical data can be used with confidence. QA/QC procedures to be initiated include the following:

- Field logs;
- Clean sampling techniques;
- CoCs;

- QA/QC Samples; and
- Data verification.

Each of these procedures is discussed in more detail in the following sections.

7.11.1 Field Logs

The purpose of field logs is to record sampling information and field observations during monitoring that may explain any uncharacteristic analytical results. Sampling information to be included in the field log include the date and time of water quality sample collection, sampling personnel, sample container identification numbers, and types of samples that were collected. Field observations should be noted in the field log for any abnormalities at the sampling location (color, odor, BMPs, etc.). Field measurements for pH and turbidity should also be recorded in the field logs are included in Appendix Q "Example Forms".

7.11.2 Clean Sampling Techniques

Clean sampling techniques involve the use of certified clean containers for sample collection and clean powder-free nitrile gloves during sample collection and handling. As discussed in Section 7.7.7, adoption of a clean sampling approach will minimize the chance of field contamination and questionable data results.

7.11.3 Chain of Custody

The sample CoC is an important documentation step that tracks samples from collection through analysis to ensure the validity of the sample. Sample CoC procedures include the following:

- Proper labeling of samples;
- Use of CoC forms for all samples; and
- Prompt sample delivery to the analytical laboratory.

Analytical laboratories usually provide CoC forms to be filled out for sample containers. An example CoC is included in Appendix Q "Example Forms".

7.11.4 QA/QC Samples

QA/QC samples provide an indication of the accuracy and precision of the sample collection; sample handling; field measurements; and analytical laboratory methods. The following types of QA/QC will be conducted for this project:

☒ Field Duplicates at a frequency of 5 percent or 1 duplicate minimum per sampling event. (Required for all sampling plans with field measurements or laboratory analysis)

☐ Equipment Blanks at a frequency of Insert frequency required by method

(Only needed if equipment used to collect samples could add the pollutants to sample)

☐ Field Blanks at a frequency of Insert frequency required by method
(Only required if sampling method calls for field blanks)

☐ Travel Blanks at a frequency of Insert frequency required by method
(Required for sampling plans that include VOC laboratory analysis)

7.11.4.1 Field Duplicates

Field duplicates provide verification of laboratory or field analysis and sample collection. Duplicate samples shall be collected, handled, and analyzed using the same protocols as primary

samples. The sample location where field duplicates are collected shall be randomly selected from the discharge locations. Duplicate samples shall be collected immediately after the primary sample has been collected. Duplicate samples must be collected in the same manner and as close in time as possible to the original sample. Duplicate samples shall not influence any evaluations or conclusion.

7.11.4.2 Equipment Blanks

Equipment blanks provide verification that equipment has not introduced a pollutant into the sample. Equipment blanks are typically collected when:

- New equipment is used;
- Equipment that has been cleaned after use at a contaminated site;
- Equipment that is not dedicated for surface water sampling is used; or
- Whenever a new lot of filters is used when sampling metals.

7.11.4.3 Field Blanks

Field blanks assess potential sample contamination levels that occur during field sampling activities. De-ionized water field blanks are taken to the field, transferred to the appropriate container, and treated the same as the corresponding sample type during the course of a sampling event.

7.11.4.4 Travel Blanks

Travel blanks assess the potential for cross-contamination of volatile constituents between sample containers during shipment from the field to the laboratory. De-ionized water blanks are taken along for the trip and held unopened in the same cooler with the VOC samples.

7.11.5 Data Verification

After results are received from the analytical laboratory, the QSP shall verify the data to ensure that it is complete, accurate, and the appropriate QA/QC requirements were met. Data must be verified as soon as the data reports are received. Data verification shall include:

- Check the CoC and laboratory reports.
  Make sure all requested analyses were performed and all samples are accounted for in the reports.
- Check laboratory reports to make sure hold times were met and that the reporting levels meet or are lower than the reporting levels agreed to in the contract.
- Check data for outlier values and follow up with the laboratory.
  Occasionally typographical errors, unit reporting errors, or incomplete results are reported and should be easily detected. These errors need to be identified, clarified, and corrected quickly by the laboratory. The QSP should especially note data that is an order of magnitude or more different than similar locations or is inconsistent with previous data from the same location.
- Check laboratory QA/QC results.
  EPA establishes QA/QC checks and acceptable criteria for laboratory analyses. These data are typically reported along with the sample results. The QSP shall evaluate the reported QA/QC data to check for contamination (method, field, and equipment blanks), precision (laboratory matrix spike duplicates), and accuracy (matrix spikes and laboratory control samples). When QA/QC checks are outside acceptable ranges, the laboratory must flag the data, and usually provides an explanation of the potential impact to the sample results.

- Check the data set for outlier values and, accordingly, confirm results and re-analyze samples where appropriate.
  Sample re-analysis should only be undertaken when it appears that some part of the QA/QC resulted in a value out of the accepted range. Sample results may not be discounted unless the analytical laboratory identifies the required QA/QC criteria were not met and confirms this in writing.

Field data including inspections and observations must be verified as soon as the field logs are received, typically at the end of the sampling event. Field data verification shall include:

- Check field logs to make sure all required measurements were completed and appropriately documented;
- Check reported values that appear out of the typical range or inconsistent; Follow-up immediately to identify potential reporting or equipment problems, if appropriate, recalibrate equipment after sampling;
- Verify equipment calibrations;
- Review observations noted on the field logs; and
- Review notations of any errors and actions taken to correct the equipment or recording errors.

7.12 Records Retention

All records of stormwater monitoring information and copies of reports (including Annual Reports) must be retained for a period of at least three years from date of submittal or longer if required by the Regional Water Board.

Results of visual monitoring, field measurements, and laboratory analyses must be kept in the SWPPP along with CoCs, and other documentation related to the monitoring.

Records are to be kept onsite while construction is ongoing. Records to be retained include:

- The date, place, and time of inspections, sampling, visual observations, and/or measurements, including precipitation;
- The individual(s) who performed the inspections, sampling, visual observation, and/or field measurements;
- The date and approximate time of field measurements and laboratory analyses;
- The individual(s) who performed the laboratory analyses;
- A summary of all analytical results, the method detection limits and reporting limits, and the analytical techniques or methods used;
- Rain gauge readings from site inspections;
- QA/QC records and results;
- Calibration records;
- Visual observation and sample collection exemption records;
- The records of any corrective action and follow-up activities that result from analyticl results, visual observations, or inspections
- NAL Exceedance Reports

Section 8 References

State Water Resources Control Board (2009). *Order 2009-0009-DWQ, NPDES General Permit No. CAS000002: National Pollutant Discharges Elimination System (NPDES) California General Permit for Storm Water Discharge Associated with Construction and Land Disturbing Activities*. Available online at: http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml.

State Water Resources Control Board (2010). *Order 2010-0014-DWQ, NPDES General Permit No. CAS000002: National Pollutant Discharges Elimination System (NPDES) California General Permit for Storm Water Discharge Associated with Construction and Land Disturbing Activities*. Available online at: http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml.

State Water Resources Control Board (2012). *Order 2012-0006-DWQ, NPDES General Permit No. CAS000002: National Pollutant Discharges Elimination System (NPDES) California General Permit for Storm Water Discharge Associated with Construction and Land Disturbing Activities*. Available online at: http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml.

CASQA (2019). *Construction BMP Handbook*. Available online at: www.casqa.org

Appendix A: Construction General Permit

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

State Water Resources Control Board

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR
STORM WATER DISCHARGES
ASSOCIATED WITH CONSTRUCTION AND LAND DISTURBANCE ACTIVITIES

ORDER NO. 2012-0006-DWQ
NPDES NO**. CAS000002**

Order No. 2009-0009-DWQ was adopted by the State Water Resources Control Board on:	**September 2, 2009**
Order No. 2009-0009-DWQ became effective on:	**July 1, 2010**
Order No. 2010-0014-DWQ became effective on:	**February 14, 2011**
Order No. 2009-0009-DWQ as amended by 2010-0014-DWQ shall expire on:	**September 2, 2014**
This Order, which amends Order No. 2009-0009-DWQ as amended by 2010-0014-DWQ, was adopted by the State Water Resources Control Board on:	**July 17, 2012**
This Order No. 2012-0006-DWQ shall become effective on:	**July 17, 2012**

IT IS HEREBY ORDERED that this Order amends Order No. 2009-0009-DWQ. Additions to Order No. 2009-0009-DWQ are reflected in blue-underline text and deletions are reflected in red-strikeout text.

IT IS FURTHER ORDERED that staff are directed to prepare and post a conformed copy of Order No. 2009-000-DWQ incorporating the revisions made by this Order.

I, Jeanine Townsend, Clerk to the Board, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the State Water Resources Control Board, on July 17, 2012.

AYE:	Chairman Charles R. Hoppin Vice Chair Frances Spivy-Weber Board Member Tam M. Doduc Board Member Steven Moore Board Member Felicia Marcus
NAY:	None
ABSENT:	None
ABSTAIN:	None

Jeanine Townsend
Clerk to the Board

CHANGES TO Order No. 2009-0009-DWQ

Fact Sheet, Section I.B.2 Court Decisions on Public Participation, Page 3

The CWA and the USEPA's regulations provide states with the discretion to formulate permit terms, including specifying best management practices (BMPs), to achieve strict compliance with federal technology-based and water quality-based standards. (Natural Resources Defense Council v. USEPA (9th Cir. 1992) 966 F.2d 1292, 1308.) Accordingly, this General Permit has developed specific BMPs as well as numeric action levels (NALs) ~~and numeric effluent limitations (NELs)~~ in order to achieve these minimum federal standards. In addition, the General Permit requires a SWPPP and REAP (another dynamic, site-specific plan) to be developed but has removed all language requiring the discharger to implement these plans – instead, the discharger is required to comply with specific requirements. By requiring the dischargers to implement these specific BMPs and NALs, this General Permit ensures that the dischargers do not "write their own permits." As a result this General Permit does not require each discharger's SWPPP and REAP to be reviewed and approved by the Regional Water Boards.

Fact Sheet, Section I.F Summary of Significant Changes in This General Permit, Page 5

~~**Technology-Based Numeric Effluent Limitations**: this General Permit contains daily average NELs for pH during any construction phase where there is a high risk of pH discharge and daily average NELs turbidity for all discharges in Risk Level 3. The daily average NEL for turbidity is set at 500 NTU to represent the minimum technology that sites need to employ (to meet the traditional Best Available Technology Economically Achievable (BAT)/ Best Conventional Pollutant Control Technology (BCT) standard) and the traditional, numeric receiving water limitations for turbidity.~~

Effluent Monitoring and Reporting: this General Permit requires effluent monitoring and reporting for pH and turbidity in storm water discharges. The purpose of this monitoring is to ~~determine compliance with the NELs and~~ evaluate whether NALs and NELs for Active Treatment Systems included in this General Permit are exceeded.

Receiving Water Monitoring and Reporting: this General Permit requires some Risk Level 3 and LUP Type 3 dischargers to monitor receiving waters and conduct bioassessments.

Fact Sheet, Section II.E.4, Discharge Prohibitions, Page 13

These authorized non-storm water discharges must:

1. be infeasible to eliminate;
2. comply with BMPs as described in the SWPPP;
3. filter or treat, using appropriate technology, all dewatering discharges from sedimentation basins;
4. meet the ~~NELs and~~ NALs for pH and turbidity; and
5. not cause or contribute to a violation of water quality standards.

Fact Sheet, Section II.F, Effluent Standards for All Types of Discharges, Page 13-19

1. Technology-Based Effluent Limitations

Permits for storm water discharges associated with construction activity must meet all applicable provisions of Sections 301 and 402 of the CWA. These provisions require controls of pollutant discharges that utilize best available technology economically achievable (BAT) for toxic pollutants and non conventional pollutants and best conventional pollutant control technology (BCT) for conventional

pollutants. Additionally, these provisions require controls of pollutant discharges to reduce pollutants and any more stringent controls necessary to meet water quality standards. The U.S. EPA has already established such limitations, known as effluent limitation guidelines (ELGs), for some industrial categories. This is not the case with construction discharges. In instances where there are no ELGs the permit writer is to use best professional judgment (BPJ) to establish requirements that the discharger must meet using BAT/BCT technology. ~~This General Permit contains both narrative effluent limitations and new numeric effluent limitations for pH and turbidity, set using the best professional judgment (BPJ) equivalent to BAT and BCT (respectively).~~ This General Permit contains only narrative effluent limitations and does not contain numeric effluent limitations, except for Active Treatment Systems (ATS).

Order No. 2009-0009-DWQ, as originally adopted by the State Water Board on September 2, 2009, contained numeric effluent limitations for pH (within the range of 6.0 and 9.0 pH units) and turbidity (500 NTU) that applied only to Risk Level 3 and LUP Type 3 construction sites. The State Water Board adopted the numeric effluent limitations as technology-based effluent limitations based upon its best professional judgment. The California Building Industry Association, the Building Industry Legal Defense Foundation, and the California Business Properties Association (petitioners) challenged Order No. 2009-0009-DWQ in *California Building Industry Association et al. v. State Water Resources Control Board*. On December 27, 2011, the Superior Court issued a judgment and writ of mandamus. The Superior Court ruled in favor of the State Water Board on almost all of the issues the petitioners raised, but the Superior Court invalidated the numeric effluent limitations for pH and turbidity for Risk Level 3 and LUP Type 3 sites because it determined that the State Water Board did not have sufficient BMP performance data to support those numeric effluent limitations. Therefore, the Superior Court concluded that the State Water Board did not comply with the federal regulations that apply to the use of best professional judgment. In invalidating the numeric effluent limitations, the Superior Court also suspended two ancillary requirements (a compliance storm event provision and receiving water monitoring at Risk Level 3 and LUP Type 3 sites that violated the numeric effluent limitations) that related solely to the invalidated numeric effluent limitations.

As a result of the Superior Court's writ of mandamus, this Order no longer contains numeric effluent limitations for pH and turbidity, except for ATS. In addition, as a result of the Superior Court's writ of mandamus, the receiving water monitoring requirements for Risk Level 3 and LUP Type 3 sites were suspended until the State Water Board amended this Order to restore the receiving water monitoring requirements. As amended, this Order now requires Risk Level 3 and LUP Type 3 Dischargers with direct discharges to surface waters to conduct receiving water monitoring whenever their effluent exceeds specified receiving water monitoring triggers. The receiving water monitoring triggers were established at the same levels as the previous numeric effluent limitations (effluent pH outside the range of 6.0 and 9.0 pH units or turbidity exceeding 500 NTU). In restoring the receiving water monitoring requirements, the State Water Board determined that it was appropriate to require receiving water monitoring for these types of sites with direct discharges to surface waters that exceeded the receiving water monitoring triggers under any storm event scenarios, because these sites represent the highest threat to receiving water quality. An exceedance of a receiving water monitoring trigger does not constitute a violation of this General Permit. These receiving water monitoring requirements take effect on the effective date of the amendment to this Order.

BAT/BCT technologies not only include passive systems such as conventional runoff and sediment control, but also treatment systems such as coagulation/flocculation using sand filtration, when appropriate. Such technologies allow for effective treatment of soil particles less 0.02 mm (medium silt) in diameter. The discharger must install structural controls, as necessary, such as erosion and sediment controls that meet BAT and BCT to achieve compliance with water quality standards. The narrative effluent limitations constitute compliance with the requirements of the CWA~~.~~

~~The numeric effluent limitations for pH and turbidity are based upon BPJ, which authorizes the State Water Board to issue a permit containing "such conditions as the Administrator determines are necessary to carry out the provisions of this Chapter" (CWA § 402(a)(1), 33 U.S.C. § 1342(a)(1).) Because the USEPA has not yet issued an effluent limit guideline for storm water, the State Water Board must use BPJ to consider the appropriate technology for the category or class of point sources, based upon all available information and any unique factors relating to the sources. In addition, the permitting authority~~

~~must consider a number of factors including the cost of achieving effluent reductions in relation to the effluent reduction benefits, the age of the equipment and facilities, the processes employed and any required process changes, engineering aspects of the control technologies, non-water quality environmental impacts (including energy requirements), and other such other factors as the State Water Board deems appropriate (CWA 304(b)(1)(B)).~~

Because the permit is an NPDES permit, there is no legal requirement to address the factors set forth in Water Code sections 13241 and 13263, unless the permit is more stringent than what federal law requires. (See *City of Burbank v. State Water Resources Control Bd.* (2005) 35 Cal.4th 613, 618, 627.) None of the requirements in this permit are more stringent than the minimum federal requirements, which include technology-based requirements achieving BAT/BCT and strict compliance with water quality standards. The inclusion of numeric effluent limitations (NELs) in the permit for Active Treatment Systems does not cause the permit to be more stringent than current federal law. NELs and best management practices are simply two different methods of achieving the same federal requirement: strict compliance with state water quality standards. Federal law authorizes both narrative and numeric effluent limitations to meet state water quality standards. The use of NELs to achieve compliance with water quality standards is not a more stringent requirement than the use of BMPs. (State Water Board Order No. WQ 2006-0012 (*Boeing*).) Accordingly, the State Water Board does not need to take into account the factors in Water Code sections 13241 and 13263.

The State Water Board has concluded that the establishment of BAT/BCT will not create or aggravate other environmental problems through increases in air pollution, solid waste generation, or energy consumption. While there may be a slight increase in non-water quality impacts due to the implementation of additional monitoring or the construction of additional BMPs, these impacts will be negligible in comparison with the construction activities taking place on site and would be justified by the water quality benefits associated with compliance.

~~Considerations related to the processes employed and the changes necessitated by the adoption of the BAT/BCT effluent limits have been assessed throughout the stakeholder process (e.g., the Blue Ribbon Panel and the March 2007 preliminary draft) and are discussed in detail in Section I.C of this Fact Sheet. The following sections set forth the engineering aspects of the control technologies and the rationale for the determination of the numeric effluents for pH and turbidity.~~

~~In consideration of the costs for the establishment of BAT and BCT limits for pH and turbidity, existing requirements for the control of storm water pollution from construction sites have been established by USEPA and the previous Construction General Permit (State Water Board Order No. 99-08-DWQ) issued by the State Water Board. The General Permit establishes one, consistent set of performance standards for all levels and types of discharges (i.e., risk, linear utility, and ATS).The only difference is that for each level or type of discharge there may be more or less specific effluent limitations (e.g., the addition of numeric effluent limitations for turbidity applies to level/type 3 discharges). And the numeric effluent limitations themselves represent a minimum technology standard. In other words, the additional numeric effluent limitations, compared to the existing permit's narrative effluent limitations, do not increase compliance requirements; rather, they simply represent a point where one can quantitatively measure compliance with the lower end of the range of required technologies. Therefore, the compliance costs associated with the BAT/BCT numeric effluent limitations in this permit only differ by the costs required to measure compliance with the NELs when compared to the baseline compliance costs to comply with the limitations already established through EPA regulations and the existing Construction General Permit.~~

~~The State Water Board estimates these measurement costs to be approximately $1000 per construction site for the duration of the project. This represents the estimated cost of purchasing (or renting) monitoring equipment, in this case a turbidimeter (~$600) and a pH meter (~$400). In some cases the costs may be higher or lower. Costs could be lower if the discharger chooses to design and implement the project in a manner where effluent monitoring is likely to be avoided (e.g., no exposure during wet weather seasons, no discharge due to containment, etc.). Costs could be more if the project is subject to many effluent monitoring events or if the discharger exceeds NALs and/or NELs, resulting in additional monitoring requirements.~~

pH ~~NEL~~ Receiving Water Monitoring Trigger

Given the potential contaminants, the minimum standard method for control of pH in runoff requires the use of preventive measures such as avoiding concrete pours during rainy weather, covering concrete and directing flow away from fresh concrete if a pour occurs during rain, covering scrap drywall and stucco materials when stored outside and potentially exposed to rain, and other housekeeping measures. If necessary, pH-impaired storm water from construction sites can be treated in a filter or settling pond or basin, with additional natural or chemical treatment required to meet pH limits set forth in this permit. The basin or pond acts as a collection point and holds storm water for a sufficient period for the contaminants to be settled out, either naturally or artificially, and allows any additional treatment to take place. The State Water Board considers these techniques to be equivalent to BCT. In determining the pH concentration ~~limit~~ trigger for discharges, the State Water Board used BPJ to set these limitations.

The chosen ~~limits were~~ trigger was established by calculating three standard deviations above and below the mean pH of runoff from highway construction sites[1] in California. Proper implementation of BMPs should result in discharges that are within the range of 6.0 to 9.0 pH Units.

Turbidity ~~NEL~~ Receiving Water Monitoring Trigger

The Turbidity ~~NEL~~ receiving water monitoring trigger of 500 NTU is a technology-based ~~numeric effluent limitation~~ trigger and was developed using three different analyses aimed at finding the appropriate threshold to set the technology-based limit to ensure environmental protection, effluent quality and cost-effectiveness. The analyses fell into three, main types: (1) an ecoregion-specific dataset developed by Simon et. al. (2004) [2]; (2) Statewide Regional Water Quality Control Board enforcement data; and (3) published, peer-reviewed studies and reports on in-situ performance of best management practices in terms of erosion and sediment control on active construction sites.

A 1:3 relationship between turbidity (expressed as NTU) and suspended sediment concentration (expressed as mg/L) is assumed based on a review of suspended sediment and turbidity data from three gages used in the USGS National Water Quality Assessment Program:

USGS 11074000 SANTA ANA R BL PRADO DAM CA
USGS 11447650 SACRAMENTO R A FREEPORT CA
USGS 11303500 SAN JOAQUIN R NR VERNALIS CA

~~The turbidity NEL represents a feasible and cost effective performance standard that is demonstrated to be achievable. Although data has been collected to demonstrate that lower effluent levels may be achievable at some sites, staff cannot conclude at this time that a lower NEL is achievable within all the ecoregions of the state.~~ The ~~NEL~~ receiving water monitoring trigger represents staff determination that the ~~NEL~~ trigger value is the most practicable based on available data. The turbidity ~~NEL~~ receiving water monitoring trigger represents a bridge between the narrative effluent limitations and receiving water limitations. ~~The NEL limit may be considered an interim performance standard as additional data becomes available for evaluation during the next permit cycle.~~ To support this ~~NEL~~ receiving water monitoring trigger, State Water Board staff analyzed construction site discharge information (monitoring data, estimates) and receiving water monitoring information.

Since the turbidity ~~NEL~~ receiving water monitoring trigger represents an appropriate threshold level expected at a site, compliance with this value does not necessarily represent compliance with either the narrative effluent limitations (as enforced through the BAT/BCT standard) or the receiving water limitations. In the San Diego region, some inland surface waters have a receiving water objective for turbidity equal to 20 NTU. Obviously a discharge up to, but not exceeding, the turbidity ~~NEL~~ receiving

[1] Caltrans Construction Sites Runoff Characterization Study, 2002. Available at: http://www.dot.ca.gov/hq/env/stormwater/pdf/CTSW-RT-02-055.pdf.

water monitoring trigger of 500 NTU may still cause or contribute to the exceedance of the 20 NTU standard. Most of the waters of the State are protected by turbidity objectives based on background conditions**.**

Table 1 - Regional Water Board Basin Plans, Water Quality Objectives for Turbidity

REGIONAL WATER BOARD	WQ Objective	Background/Natural Turbidity	Maximum Increase
1	Based on background	All levels	20%
2	Based on background	> 50 NTU	10%
3	Based on background	0-50 JTU 50-100 JTU > 100 JTU	20% 10 NTU 10%
4	Based on background	0-50 NTU > 50 NTU	20% 10%
5	Based on background	0-5 NTU 5-50 NTU 50-100 NTU >100 NTU	1 NTU 20% 10 NTU 10%
6	Based on background	All levels	10%
7	Based on background	N/A	N/A
8	Based on background	0-50 NTU 50-100 NTU >100 NTU	20% 10 NTU 10%
9	Inland Surface Waters, 20 NTU All others, based on background	 0-50 NTU 50-100 NTU >100 NTU	 20% 10 NTU 10%

Table 2 shows the suspended sediment concentrations at the 1.5 year flow recurrence interval for the 12 ecoregions in California from Simon et. al (2004).

Table 2 - Results of Ecoregion Analysis

Ecoregion	Percent of California Land Area	Median Suspended Sediment Concentration (mg/L)
1	9.1	874
4	0.2	120
5	8.8	35.6
6	20.7	1530
7	7.7	122
8	3.0	47.4
9	9.4	284
13	5.2	143
14	21.7	5150
78	8.1	581
80	2.4	199
81	3.7	503
Area-weighted average		1633

If a 1:3 relationship between turbidity and suspended sediment is assumed, the median turbidity is 544 NTU.

The following table is composed of turbidity readings measured in NTUs from administrative civil liability (ACL) actions for construction sites from 2003 - 2009. This data was derived from the complete listing of construction-related ACLs for the six year period. All ACLs were reviewed and those that included turbidimeter readings at the point of storm water discharge were selected for this dataset.

Table 3 – ACL Sampling Data taken by Regional Water Board Staff

WDID#	Region	Discharger	Turbidity (NTU)
5S34C331884	5S	Bradshaw Interceptor Section 6B	1800
5S05C325110	5S	Bridalwood Subdivision	1670
5S48C336297	5S	Cheyenne at Browns Valley	1629
5R32C314271	5R	Grizzly Ranch Construction	1400
6A090406008	6T	El Dorado County Department of Transportation, Angora Creek	97.4
5S03C346861	5S	TML Development, LLC	1600
6A31C325917	6T	Northstar Village	See Subdata Set

Subdata Set - Turbidity for point of storm water runoff discharge at Northstar Village

Date	Turbidity (NTU)	Location
10/5/2006	900	Middle Martis Creek
11/2/2006	190	Middle Martis Creek
01/04/2007	36	West Fork, West Martis Creek
02/08/2007	180	Middle Martis Creek
02/09/2007	130	Middle Martis Creek
02/09/2007	290	Middle Martis Creek
02/09/2007	100	West Fork, West Martis Creek
02/10/2007	28	Middle Martis Creek
02/10/2007	23	Middle Martis Creek
02/10/2007	32	Middle Martis Creek
02/10/2007	12	Middle Martis Creek
02/10/2007	60	West Fork, West Martis Creek
02/10/2007	34	West Fork, West Martis Creek

A 95% confidence interval for mean turbidity in an ACL order was constructed. The data set used was a small sample size, so the 500 NTU (the value derived as the ~~NEL~~ receiving water monitoring trigger for this General Permit) needed to be verified as a possible population mean. In this case, the population refers to a hypothetical population of turbidity measurements of which our sample of 20 represents. A t-distribution was assumed due to the small sample size:

Mean: 512.23 NTU
Standard Deviation: 686.85
Margin of Error: 321.45
Confidence Interval: 190.78 NTU (Low)
833.68 NTU (High)

Based on a constructed 95% confidence interval, an ACL order turbidity measurement will be between 190.78 – 833.68 NTU. 500 NTU falls within this range. Using the same data set, a small-sample hypothesis test was also performed to test if the ACL turbidity data set contains enough information to cast doubt on choosing a 500 NTU as a mean. 500 NTU was again chosen due to its proposed use as an acceptable ~~NEL~~ value. The test was carried out using a 95% confidence interval. Results indicated that the ACL turbidity data set *does not* contain significant sample evidence to reject the claim of 500 NTU as an acceptable mean for the ACL turbidity population.

There are not many published, peer-reviewed studies and reports on in-situ performance of best management practices in terms of erosion and sediment control on active construction sites. The most often cited study is a report titled, "Improving the Cost Effectiveness of Highway Construction Site Erosion and Pollution Control" (Horner, Guedry, and Kortenhof 1990, http://www.wsdot.wa.gov/Research/Reports/200/200.1.htm). In a comment letter summarizing this report sent to the State Water Board, the primary author, Dr. Horner, states:

"The most effective erosion control product was wood fiber mulch applied at two different rates along with a bonding agent and grass seed in sufficient time before the tests to achieve germination. Plots treated in this way reduced influent turbidity by more than 97 percent and discharged effluent exhibiting mean and maximum turbidity values of 21 and 73 NTU, respectively. Some other mulch and blanket materials performed nearly as well. These tests demonstrated the control ability of widely available BMPs over a very broad range of erosion potential."

Other technologies studied in this report produced effluent quality at or near 100 NTU. It is the BPJ of the State Water Board staff that erosion control, while preferred, is not always an option on construction sites and that technology performance in a controlled study showing effluent quality directly leaving a BMP is always easier and cheaper to control than effluent being discharged from the project (edge of property, etc.). As a result, it is the BPJ of the State Water Board staff that it is not cost effective or feasible, at this time, for all risk level and type 3 sites in California to achieve effluent discharges with turbidity values that are less than 100 NTU.

To summarize, the analysis showed that: (1) results of the Simon et. al dataset reveals turbidity values in background receiving water in California's ecoregions range from 16 NTU to 1716 NTU (with a mean of 544 NTU); (2) based on a constructed 95% confidence interval, construction sites will be subject to administrative civil liability (ACL) when their turbidity measurement falls between 190.78 – 833.68 NTU; and (3) sites with highly controlled discharges employing and maintaining good erosion control practices can discharge effluent from the BMP with turbidity values less than 100 NTU. ~~Therefore, the appropriate threshold to set the technology-based limit to ensure environmental protection, effluent quality, and cost-effectiveness ranges from 100 NTU to over 1700 NTU. To keep this parameter and the costs of compliance as low as possible,~~ State Water Board staff has determined, using its BPJ, that it is most cost effective to set the ~~numeric effluent limitation~~ receiving water monitoring trigger for turbidity at 500 NTU.

Compliance Storm Event

~~In response to public comments on the last draft and the recommendations of the expert panel, this General Permit contains "compliance storm event" exceptions from the technology-based NELs. The rationale is that technology-based requirements are developed assuming a certain design storm (defined as the storm producing a rainfall amount for a specified BMPs capacity). Compliance thresholds are needed for storm events above and beyond the design storms assumed to determine the technology-based NELs. For Risk Level 3 project sites applicable to NELs, this General Permit establishes a compliance storm event as the equivalent rainfall in a 5-year, 24-hour storm. This compliance storm was~~

~~chosen due to its relative infrequent occurrence and the fact that the runoff volume associated with it is not as large as a 10-year, 24-hour storm event. The discharger shall determine this value using Western Regional Climate Center Precipitation Frequency Maps[3] for 5-year 24-hour storm events in Northern and Southern California (note that these are expressed in tenths of inches – divide by 10 to get inches).~~
While this General Permit no longer contains "compliance storm event" exceptions from technology-based NELs, the "compliance storm event" exception from the ATS NELs remain in effect. See Section K of this Fact Sheet, and Attachment F of this General Permit for more information.

Fact Sheet, Section II.I.1, Traditional Construction Monitoring Requirements, Page 21

Table 4 - Required Monitoring Elements for Risk Levels

	Visual	Non-visible Pollutant	Effluent	Receiving Water
Risk Level 1	three types required for all Risk Levels: non-storm water, pre-rain and post-rain	As needed for all Risk Levels (see below)	where applicable	not required
Risk Level 2			pH, turbidity	not required
Risk Level 3			~~(if NEL exceeded) pH, turbidity and SSC~~ pH, turbidity	(if ~~NEL~~ Receiving Water Monitoring Trigger exceeded) pH, turbidity and SSC. Bioassessment for sites 30 acres or larger.

Fact Sheet, Section II.I.1.c, Effluent Monitoring, Page 23-24

Federal regulations[4] require effluent monitoring for discharges subject to NALs ~~and NELs~~. Subsequently, all Risk Level 2 and 3 dischargers must perform sampling and analysis of effluent discharges to characterize discharges associated with construction activity from the entire area disturbed by the project. Dischargers must collect samples of stored or contained storm water that is discharged subsequent to a storm event producing precipitation of ½ inch or more at the time of discharge.

Table 5 - Storm Water Effluent Monitoring Requirements by Risk Level

	Frequency	Effluent Monitoring (Section E, below)
Risk Level 1	when applicable	non-visible pollutant parameters (if applicable)
Risk Level 2	Minimum of 3 samples per day during qualifying rain event characterizing discharges associated with construction activity from the entire project disturbed area.	pH, turbidity, and non-visible pollutant parameters (if applicable)
Risk Level 3	Minimum of 3 samples per day during qualifying rain event characterizing discharges associated with construction activity from the entire project disturbed area.	~~If NEL exceeded: pH, turbidity and suspended sediment concentration (SSC)., Plus~~ pH, turbidity, and non-visible pollutant parameters if applicable

[4] 40 C.F.R. § 122.44.

Risk Level 1 dischargers must analyze samples for:

i. any parameters indicating the presence of pollutants identified in the pollutant source assessment required in Attachment C contained in the General Permit.

Risk Level 2 dischargers must analyze samples for:

i. pH and turbidity;

ii. any parameters indicating the presence of pollutants identified in the pollutant source assessment required in Attachment D contained in the General Permit, and

iii. any additional parameters for which monitoring is required by the Regional Water Board.

Risk Level 3 dischargers must analyze samples for:

i. pH, turbidity ~~and SSC~~;

ii. any parameters indicating the presence of pollutants identified in the pollutant source assessment required in Attachment E contained in the General Permit, and

iii. any additional parameters for which monitoring is required by the Regional Water Board.

Fact Sheet, Section II.I.3, Receiving Water Monitoring, Page 26-27

In order to ensure that receiving water limitations are met, discharges subject to ~~numeric effluent limitations~~ receiving water monitoring triggers (i.e., Risk Level 3 and LUP Type 3 sites) or numeric effluent limitations ~~(i.e., Risk Level 3, LUP Type 3, and~~ (i.e., Risk Level 3 and LUP Type 3 sites utilizing ATS with direct discharges into receiving waters) must also monitor the downstream receiving water(s) for turbidity, SSC, and pH (if applicable) when ~~an NEL~~ a receiving water monitoring trigger or NEL is exceeded.

a. **Bioassessment Monitoring**

This General Permit requires a bioassessment of receiving waters for dischargers of Risk Level 3 or LUP Type 3 construction projects equal to or larger than 30 acres with direct discharges into receiving waters. Benthic macroinvertebrate samples will be taken upstream and downstream of the site's discharge point in the receiving water. Bioassessments measure the quality of the stream by analyzing the aquatic life present. Higher levels of appropriate aquatic species tend to indicate a healthy stream; whereas low levels of organisms can indicate stream degradation. Active construction sites have the potential to discharge large amounts of sediment and pollutants into receiving waters. Requiring a bioassessment for large project sites, with the most potential to impact water quality, provides a snapshot of the health of the receiving water prior to initiation of construction activities. This snapshot can be used in comparison to the health of the receiving water after construction has commenced.

Each ecoregion (biologically and geographically related area) in the State has a specific yearly peak time where stream biota is in a stable and abundant state. This time of year is called an Index Period. The bioassessment requirements in this General Permit, requires benthic macroinvertebrate sampling within a sites index period. The State Water Board has developed a map designating index periods for the ecoregions in the State (see State Water Board Website).

This General Permit requires the bioassessment methods to be in accordance with the Surface Water Ambient Monitoring Program (SWAMP) in order to provide data consistency within the state as well as generate useable biological stream data.

Table 6 - Receiving Water Monitoring Requirements

	Receiving Water Monitoring Parameters
Risk Level 1 /LUP Type 1	not required
Risk Level 2 / LUP Type 2	not required
Risk Level 3 / LUP Type 3	If ~~NEL~~ Receiving Water Monitoring Trigger exceeded: pH (if applicable), turbidity, and SSC. Bioassessment for sites 30 acres or larger.

4. Reporting Requirements

~~**a. NEL Violation Report**~~

~~All Risk Level 3 and LUP Type 3 dischargers must electronically submit all storm event sampling results to the State and Regional Water Boards, via SMARTS, no later than 5 days after the conclusion of the storm event. The purpose of the electronic filing of the NEL Violation Report is to 1) inform stakeholder agencies and organizations and the general public, and 2) notify the State and Regional Water Boards of the exceedance so that they can determine whether any follow-up (e.g., inspection, enforcement, etc.) is necessary to bring the site into compliance.~~

~~In the event that an applicable NEL has been exceeded during a storm event equal to or larger than the Compliance Storm Event, Risk level 3/LUP Type 3 dischargers shall report the on-site rain gauge reading and nearby governmental rain gauge readings for verification. Specifically, the NEL Exceedance Report is required to contain:~~

- ~~the analytical method(s), method reporting unit(s), and method detection limit(s) of each analytical parameter (analytical results that are less than the method detection limit are to be reported as "less than the method detection limit or <MDL");~~
- ~~the date, place, and time of sampling;~~
- ~~any visual observation (inspections);~~
- ~~any measurements, including precipitation; and~~
- ~~a description of the current BMPs associated with the effluent sample that exceeded the NEL and any proposed corrective actions taken.~~

b. NAL Exceedance Report

All Risk Level 3 and LUP Type 3 dischargers must electronically submit all storm event sampling results to the State And Regional Boards, via the electronic data system, no later than 10 ~~5~~ days after the conclusion of the storm event.

Fact Sheet, Section II.J.1.a, Overall Risk Determination, Page 30

In response to public comments, the Risk Level requirements have also been changed such that Risk Level 1 projects will be subject to minimum BMP and visual monitoring requirements, Risk Level 2 will be subject to NALs and some additional monitoring requirements, and Risk Level 3 projects will be subject to some additional requirements, NALs ~~NELs~~, and more rigorous monitoring requirements such as receiving water monitoring and in some cases bioassessment.

Fact Sheet, Section II.J.1.b, Effluent Standards, Page 30

~~Risk Level 2, and 3 dischargers are subject to numeric effluent standards comparable to the project's risk to water quality.~~ Risk Level 2 dischargers that pose a medium risk to water quality are subject to technology-based NALs for pH and turbidity. Risk Level 3 dischargers that pose a high risk to water quality are also subject to technology-based NALs ~~and technology-based NELs~~ for pH and turbidity.

Fact Sheet, Section II.J.2.b, Linear Effluent Standards, Page 35

All LUPs are subject to the narrative effluent limitations specified in the General Permit.

~~Type 2 and 3 LUPs are subject to NELs comparable to the project type's risk to water quality.~~ Type 2 and Type 3 projects ~~that pose an intermediate risk to water quality are subject to technology-based NALs for pH and turbidity. Type 3 projects posing a high risk to water quality~~ are subject to technology-based NALs ~~and NELs~~ for pH and turbidity.

Order, Section I.H, Findings – Effluent Standards, Page 9-10

52. The State Water Board convened a blue ribbon panel of storm water experts that submitted a report entitled, "The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities," dated June 19, 2006. The panel concluded that numeric limits or action levels are technically feasible to control construction storm water discharges, provided that certain conditions are considered. The panel also concluded that numeric effluent limitations (NELs) are feasible for discharges from construction sites that utilize an ATS. The State Water Board has incorporated the expert panel's suggestions into this General Permit, which includes ~~both~~ numeric action levels (NALs) ~~and NELs~~ for pH and turbidity, and special numeric limits for ATS discharges.

~~Numeric Effluent Limitations~~

~~53. Discharges of storm water from construction activities may become contaminated from alkaline construction materials resulting in high pH (greater than pH 7). Alkaline construction materials include, but are not limited to, hydrated lime, concrete, mortar, cement kiln dust (CKD), Portland cement treated base (CTB), fly ash, recycled concrete, and masonry work. This General Permit includes an NEL for pH (6.0-9.0) that applies only at sites that exhibit a "high risk of high pH discharge." A "high risk of high pH discharge" can occur during the complete utilities phase, the complete vertical build phase, and any portion of any phase where significant amounts of materials are placed directly on the land at the site in a manner that could result in significant alterations to the background pH of any discharges.~~

~~54. For Risk Level 3 discharges, this General Permit establishes technology-based, numeric effluent limitations (NELs) for turbidity of 500 NTU. Exceedances of the turbidity NEL constitutes a violation of this General Permit.~~

~~55. This General Permit establishes a 5 year, 24 hour (expressed in inches of rainfall) Compliance Storm Event exemption from the technology-based NELs for Risk Level 3 dischargers.~~

Determining Compliance with Numeric Limitations

56. This General Permit sets a pH NAL of 6.5 to 8.5, and a turbidity NAL of 250 NTU. The purpose of the NAL and its associated monitoring requirement is to provide operational information regarding the performance of the measures used at the site to minimize the discharge of pollutants and to protect beneficial uses and receiving waters from the adverse effects of construction-related storm water discharges. ~~The NALs in this General Permit for pH and turbidity are not directly enforceable and do not constitute NELs.~~ An exceedance of a NAL does not constitute a violation of this General Permit.

57. This General Permit requires dischargers with NAL exceedances to immediately implement additional BMPs and revise their Storm Water Pollution Prevention Plans (SWPPPs) accordingly to either prevent pollutants and authorized non-storm water discharges from contaminating storm water, or to substantially reduce the pollutants to levels consistently below the NALs. NAL exceedances are reported in the State Water Boards SMARTS system, and the discharger is required to provide an NAL Exceedance Report when requested by a Regional Water Board.

~~58. If run-on is caused by a forest fire or any other natural disaster, then NELs do not apply.~~

~~59. Exceedances of the NELs are a violation of this Permit. This General Permit requires dischargers with NEL exceedances to implement additional monitoring, BMPs, and revise their SWPPPs accordingly. Dischargers are required to notify the State and Regional Water Boards of the violation through the State Water Boards SMARTs system, and provide an NEL Violation Report sharing additional information concerning the NEL exceedance.~~

Order, Section I.J, Findings – Sampling, Monitoring, Reporting and Record Keeping, Page 11

63. For all Risk Level 3/LUP Type 3 and Risk Level 2/LUP Type 2 sites, this General Permit requires effluent monitoring for pH and turbidity. Sampling, analysis and monitoring requirements for effluent monitoring for pH and turbidity are contained in this General Permit.

64. Risk Level 3 and LUP Type 3 sites with effluent that exceeds the Receiving Water Monitoring Triggers ~~in violation of the Numeric Effluent Limitations~~ contained in this General Permit and with direct discharges to receiving water are required to conduct receiving water monitoring. An exceedance of a Receiving Water Monitoring Trigger does not constitute a violation of this General Permit.

65. This General Permit establishes a 5 year, 24 hour (expressed in inches of rainfall) as an exemptions to the receiving water monitoring requirements for Risk Level 3 and LUP Type 3 dischargers.

66. If run-on is caused by a forest fire or any other natural disaster, then receiving water monitoring triggers do not apply.

67. For Risk Level 3 and LUP Type 3 sites larger than 30 acres and with direct discharges to receiving waters, this General Permit requires bioassessment sampling before and after site completion to determine if significant degradation to the receiving water's biota has occurred. Bioassessment sampling guidelines are contained in this General Permit.

Order, Section III.C, Discharge Prohibitions, Page 20

Authorized non-storm water discharges may include those from de-chlorinated potable water sources such as: fire hydrant flushing, irrigation of vegetative erosion control measures, pipe flushing and testing, water to control dust, uncontaminated ground water from dewatering, and other discharges not subject to a separate general NPDES permit adopted by a Regional Water Board. The discharge of non-storm water is authorized under the following conditions:

1. The discharge does not cause or contribute to a violation of any water quality standard;

2. The discharge does not violate any other provision of this General Permit;

3. The discharge is not prohibited by the applicable Basin Plan;

4. The discharger has included and implemented specific BMPs required by this General Permit to prevent or reduce the contact of the non-storm water discharge with construction materials or equipment.

5. The discharge does not contain toxic constituents in toxic amounts or (other) significant quantities of pollutants;

6. The discharge is monitored and meets the applicable NALs ~~and NELs~~; and

7. The discharger reports the sampling information in the Annual Report.

Order, Section V, Effluent Standards & Receiving Water Monitoring, Page 28-29

~~**B. Numeric Effluent Limitations (NELs)**~~

Table 1- ~~Numeric Effluent Limitations,~~ Numeric Action Levels, Test Methods, Detection Limits, and Reporting Units

Parameter	Test Method	Discharge Type	Min. Detection Limit	Units	Numeric Action Level	~~Numeric Effluent Limitation~~
pH	Field test with calibrated portable instrument	Risk Level 2	0.2	pH units	lower NAL = 6.5 upper NAL = 8.5	~~N/A~~
		Risk Level 3			lower NAL = 6.5 upper NAL = 8.5	~~lower NEL = 6.0~~ ~~upper NEL = 9.0~~
Turbidity	EPA 0180.1 and/or field test with calibrated portable instrument	Risk Level 2	1	NTU	250 NTU	~~N/A~~
		Risk Level 3			250 NTU	~~500 NTU~~

1. ~~Numeric Effluent Limitations (NELs):~~

   a. ~~**Storm Event, Daily Average pH Limits –** For Risk Level 3 dischargers, the pH of storm water and non-storm water discharges shall be within the ranges specified in Table 1 during any site phase where there is a "high risk of pH discharge."[5]~~

   b. ~~**Storm Event Daily Average Turbidity Limit –** For Risk Level 3 dischargers, the turbidity of storm water and non-storm water discharges shall not exceed 500 NTU.~~

2. ~~If daily average sampling results are outside the range of pH NELs (i.e., is below the lower NEL for pH or exceeds the upper NEL for pH) or exceeds the turbidity NEL (as listed in Table 1), the discharger is in violation of this General Permit and shall electronically file monitoring results in violation within 5 business days of obtaining the results.~~

3. ~~Compliance Storm Event:~~

   ~~Discharges of storm water from Risk Level 3 sites shall comply with applicable NELs (above) unless the storm event causing the discharges is determined after the fact to be equal to or larger than the Compliance Storm Event (expressed in inches of rainfall). The Compliance Storm Event for Risk Level 3 discharges is the 5 year,~~
   ~~24 hour storm (expressed in tenths of an inch of rainfall), as determined by using these maps:~~

   ~~http://www.wrcc.dri.edu/pcpnfreq/nca5y24.gif~~
   ~~http://www.wrcc.dri.edu/pcpnfreq/sca5y24.gif~~

[5] ~~A period of high risk of pH discharge is defined as a project's complete utilities phase, complete vertical build phase, and any portion of any phase where significant amounts of materials are placed directly on the land at the site in a manner that could result in significant alterations of the background pH of the discharges.~~

~~Compliance storm event verification shall be done by reporting on-site rain gauge readings as well as nearby governmental rain gauge readings.~~

~~4. Dischargers shall not be required to comply with NELs if the site receives run-on from a forest fire or any other natural disaster.~~

C. Receiving Water Monitoring Triggers

1. The receiving water monitoring triggers for Risk Level 3 dischargers with direct discharges to surface waters are triggered when the daily average effluent pH values during any site phase when there is a high risk of pH discharge[6] fall outside of the range of 6.0 and 9.0 pH units, or when the daily average effluent turbidity exceeds 500 NTU.

2. Risk Level 3 dischargers with direct discharges to surface waters shall conduct receiving water monitoring whenever their effluent monitoring results exceed the receiving water monitoring triggers. If the pH trigger is exceeded, the receiving water shall be monitored for pH for the duration of coverage under this General Permit. If the turbidity trigger is exceeded, the receiving water shall be monitored for turbidity and SSC for the duration of coverage under this general permit.

3. Risk Level 3 dischargers with direct discharges to surfaces waters shall initiate receiving water monitoring when the triggers are exceeded unless the storm event causing the exceedance is determined after the fact to equal to or greater than the 5-year 24-hour storm (expressed in inches of rainfall) as determined by using these maps:

   http://www.wrcc.dri.edu/pcpnfreq/nca5y24.gif
   http://www.wrcc.dri.edu/pcpnfreq/sca5y24.gif

   Verification of the 5-year 24-hour storm event shall be done by reporting on-site rain gauge readings as well as nearby governmental rain gauge readings.

4. If run-on is caused by a forest fire or any other natural disaster, then receiving water monitoring triggers do not apply.

[6] A period of high risk of pH discharge is defined as a project's complete utilities phase, complete vertical build phase, and any portion of any phase where significant amounts of materials are placed directly on the land at the site in a manner that could result in significant alterations of the background pH of the discharges.

Attachment A, Section D.2, Discharge Prohibitions, Page 7

LUP dischargers are prohibited from discharging non-storm water that is not otherwise authorized by this General Permit. Non-storm water discharges authorized by this General Permit[7] may include, fire hydrant flushing, irrigation of vegetative erosion control measures, pipe flushing and testing, water to control dust, street cleaning, dewatering,[8] uncontaminated groundwater from dewatering, and other discharges not subject to a separate general NPDES permit adopted by a Regional Water Board. Such discharges are allowed by this General Permit provided they are not relied upon to clean up failed or inadequate construction or post-construction BMPs designed to keep materials on site. These authorized non-storm water discharges:

a. Shall not cause or contribute to a violation of any water quality standard;

b. Shall not violate any other provision of this General Permit;

c. Shall not violate any applicable Basin Plan;

d. Shall comply with BMPs as described in the SWPPP;

e. Shall not contain toxic constituents in toxic amounts or (other) significant quantities of pollutants;

f. Shall be monitored and meets the applicable NALs ~~and NELs~~; and

g. Shall be reported by the discharger in the Annual Report.

Attachment A, Section F, Effluent Standards & Receiving Water Monitoring, Page 14-15

~~2. Numeric Effluent Limitations (NELs)~~

Table 1. ~~Numeric Effluent Limitations,~~ Numeric Action Levels, Test Methods, Detection Limits, and Reporting Units

Parameter	Test Method	Discharge Type	Min. Detection Limit	Units	Numeric Action Level	~~Numeric Effluent Limitation~~
pH	Field test with calibrated portable instrument	LUP Type 2	0.2	pH units	lower NAL = 6.5 upper NAL = 8.5	~~N/A~~
		LUP Type 3			lower NAL = 6.5 upper NAL = 8.5	~~lower NEL = 6.0~~ ~~upper NEL = 9.0~~

[7] Dischargers must identify all authorized non-storm water discharges in the LUP's SWPPP and identify BMPs that will be implemented to either eliminate or reduce pollutants in non-storm water discharges. Regional Water Boards may direct the discharger to discontinue discharging such non-storm water discharges if determined that such discharges discharge significant pollutants or threaten water quality.

[8] Dewatering activities may be prohibited or need coverage under a separate permit issued by the Regional Water Boards. Dischargers shall check with the appropriate Regional Water Boards for any required permit or basin plan conditions prior to initial dewatering activities to land, storm drains, or waterbodies.

Turbidity	EPA 0180.1 and/or field test with calibrated portable instrument	LUP Type 2	1	NTU	250 NTU	~~N/A~~
		LUP Type 3			250 NTU	~~500 NTU~~

~~a. Numeric Effluent Limitations (NELs):~~

~~**i. Storm Event, Daily Average pH Limits –** For LUP Type 3 dischargers, the daily average pH of storm water and non-storm water discharges shall be within the ranges specified in Table 1 during any project phase where there is a "high risk of pH discharge."[9]~~

~~**ii. Storm Event Daily Average Turbidity Limit –** For LUP Type 3 dischargers, the daily average turbidity of storm water and non-storm water discharges shall not exceed 500 NTU.~~

~~b. If a daily average sample result is outside the range of pH NELs (i.e., is below the lower NEL for pH or exceeds the upper NEL for pH) or exceeds the turbidity NEL (as listed in Table 1), the discharger is in violation of this General Permit and shall electronically file the results in violation within 5 business days of obtaining the results.~~

~~c. Compliance Storm Event:~~

~~Discharges of storm water from LUP Type 3 sites shall comply with applicable NELs (above) unless the storm event causing the discharges is determined after the fact to be equal to or larger than the Compliance Storm Event (expressed in inches of rainfall). The Compliance Storm Event for LUP Type 3 discharges is the 5-year, 24-hour storm (expressed in tenths of an inch of rainfall), as determined by using these maps:~~

~~http://www.wrcc.dri.edu/pcpnfreq/nca5y24.gif~~
~~http://www.wrcc.dri.edu/pcpnfreq/sca5y24.gif~~

~~Compliance storm event verification shall be done by reporting on-site rain gauge readings as well as nearby governmental rain gauge readings.~~

~~d. Dischargers shall not be required to comply with NELs if the site receives run-on from a forest fire or any other natural disaster.~~

3. Receiving Water Monitoring Triggers

a. The receiving water monitoring triggers for LUP Type 3 dischargers with direct discharges to surface waters are triggered when the daily average effluent pH values during any site phase when there is a high risk of pH discharge[10] fall outside of the range of 6.0 and 9.0 pH units, or when the daily average effluent turbidity exceeds 500 NTU.

~~[9] A period of high risk of pH discharge is defined as a project's complete utilities phase, complete vertical build phase, and any portion of any phase where significant amounts of materials are placed directly on the land at the site in a manner that could result in significant alterations of the background pH of the discharges.~~

[10] A period of high risk of pH discharge is defined as a project's complete utilities phase, complete vertical build phase, and any portion of any phase where significant amounts of materials are placed directly on the land at the site in a manner that could result in significant alterations of the background pH of the discharges.

b. LUP Type 3 dischargers with direct discharges to surface waters shall conduct receiving water monitoring whenever their effluent monitoring results exceed the receiving water monitoring triggers. If the pH trigger is exceeded, the receiving water shall be monitored for pH for the duration of coverage under this General Permit. If the turbidity trigger is exceeded, the receiving water shall be monitored for turbidity and SSC for the duration of coverage under this General Permit.

c. LUP Type 3 dischargers with direct discharges to surfaces waters shall initiate receiving water monitoring when the triggers are exceeded unless the storm event causing the exceedance is determined after the fact to equal to or greater than the 5-year 24-hour storm (expressed in inches of rainfall) as determined by using these maps:

http://www.wrcc.dri.edu/pcpnfreq/nca5y24.gif
http://www.wrcc.dri.edu/pcpnfreq/sca5y24.gif

Verification of the 5-year 24-hour storm event shall be done by reporting on-site rain gauge readings as well as nearby governmental rain gauge readings.

d. If run-on is caused by a forest fire or any other natural disaster, then receiving water monitoring triggers do not apply.

Attachment A, Section J, LUP Type-Specific Requirements, Page 20-21

1. Effluent Standards

b. Narrative – LUP dischargers shall comply with the narrative effluent standards below.

i. Storm water discharges and authorized non-storm water discharges regulated by this General Permit shall not contain a hazardous substance equal to or in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.

ii. LUP dischargers shall minimize or prevent pollutants in storm water discharges and authorized non-storm water discharges through the use of controls, structures, and management practices that achieve BAT for toxic and non-conventional pollutants and BCT for conventional pollutants.

c. Numeric – LUP Type 1 dischargers are not subject to a numeric effluent standard

d. Numeric –LUP Type 2 dischargers are subject to a pH NAL of 6.5-8.5, and a turbidity NAL of 250 NTU.

e. Numeric – LUP Type 3 dischargers are subject to a pH NAL of 6.5-8.5, and a turbidity NAL of 250 NTU. ~~In addition, LUP Type 3 dischargers are subject to a pH NEL of 6.0-9.0 and a turbidity NEL of 500 NTU~~.

Attachment A, Section M.4, LUP Type 2&3 Monitoring and Reporting Requirements, Page 36-38

b. LUP Type 2 & 3 Storm Water Effluent Monitoring Requirements

Table 4. LUP Type 2 & 3 Effluent Monitoring Requirements

LUP Type	Frequency	Effluent Monitoring
2	Minimum of 3 samples per day characterizing discharges associated with construction activity from the project active areas of construction.	Turbidity, pH, and non-visible pollutant parameters (if applicable)
3	Minimum of 3 samples per day characterizing discharges associated with construction activity from the project active areas of construction.	turbidity, pH, ~~suspended sediment concentrations (SSC)[11] (only if turbidity NEL exceeded), plus~~ and non-visible pollutant parameters (if applicable)

i. LUP Type 2 & 3 dischargers shall collect storm water grab samples from sampling locations characterizing discharges associated with activity from the LUP active areas of construction. At a minimum, 3 samples shall be collected per day of discharge.

ii. LUP Type 2 & 3 dischargers shall collect samples of stored or contained storm water that is discharged subsequent to a storm event producing precipitation of ½ inch or more at the time of discharge.

iii. LUP Type 2 & 3 dischargers shall ensure that storm water grab sample(s) obtained be representative of the flow and characteristics of the discharge.

iv. LUP Type 2 & 3 dischargers shall analyze their effluent samples for:

(1) pH and turbidity
(2) Any additional parameter for which monitoring is required by the Regional Water Board.

~~v. LUP Type 3 dischargers that have violated the turbidity daily average NEL shall analyze subsequent effluent samples for turbidity and SSC.~~

c. LUP Type 2 & 3 Storm Water Effluent Sampling Locations

i. LUP Type 2 & 3 dischargers shall perform sampling and analysis of storm water discharges to characterize discharges associated with construction activity from the entire disturbed project or area.

ii. LUP Type 2 & 3 dischargers may monitor and report run-on from surrounding areas if there is reason to believe run-on may contribute to exceedance of NALs ~~or NELs (applicable to Type 3).~~

iii. LUP Type 2 & 3 dischargers shall select analytical test methods from the list provided in Table 5 below.

iv. LUP Type 2 & 3 dischargers shall ensure that all storm water sample collection preservation and handling shall be conducted in accordance with the "Storm Water Sample Collection and Handling Instructions" below.

~~[11] Suspended Sediment Concentration monitoring is required for any Type 3 area that exceeds its turbidity NEL.~~

d. LUP Type 3 Receiving Water Monitoring Requirements

i. In the event that an LUP Type 3 discharger's effluent ~~violates an applicable NEL~~ exceeds the receiving water monitoring triggers of 500 NTU turbidity or pH range of 6.0-9.0, contained in this General Permit and has a direct discharge to receiving waters, the LUP discharger shall subsequently sample Receiving Waters (RWs) for turbidity, pH (if applicable) and SSC for the duration of coverage under this General Permit. In the event that an LUP Type 3 discharger utilizing ATS with direct discharges into receiving waters discharges effluent that exceeds the NELs in this permit, the discharger shall subsequently sample RWs for turbidity, pH (if applicable), and SSC for the duration of coverage under this General Permit.

ii. LUP Type 3 dischargers that meet the project criteria in Appendix 3 of this General Permit and have more than 30 acres of soil disturbance in the project area or project section area designated as Type 3, shall comply with the Bioassessment requirements prior to commencement of construction activity.

iii. LUP Type 3 dischargers shall obtain RW samples in accordance with the requirements of the Receiving Water Sampling Locations section (Section M.4.c~~d~~ of this Attachment).

e. LUP Type 3 Receiving Water Sampling Locations

i. **Upstream/up-gradient RW samples**: LUP Type 3 dischargers shall obtain any required upstream/up-gradient receiving water samples from a representative and accessible location as close as possible to and upstream from the effluent discharge point.

ii. **Downstream/down-gradient RW samples**: LUP Type 3 dischargers shall obtain any required downstream/down-gradient receiving water samples from a representative and accessible location as close as possible to and downstream from the effluent discharge point.

iii. If two or more discharge locations discharge to the same receiving water, LUP Type 3 dischargers may sample the receiving water at a single upstream and downstream location.

Attachment A, Section M.4, LUP Type 2&3 Monitoring and Reporting Requirements, Page 41

xii. Refer to the Surface Water Ambient Monitoring Program's (SWAMP) 2008 Quality Assurance Program Plan (QAPrP) ~~Quality Assurance Management Plan (QAMP)~~ for more information on sampling collection and analysis. See http://www.waterboards.ca.gov/water_issues/programs/swamp/[12]
~~QAMP Link:~~
~~http://www.waterboards.ca.gov/water_issues/programs/swamp/qamp.shtml~~

[12] Additional information regarding ~~QAMP can be found at http://mpsl.mlml.calstate.edu/swqacompare.htm~~ SWAMP's QAPrP can be found at: http://www.waterboards.ca.gov/water_issues/programs/swamp/.

Attachment A, Section M.4, LUP Type 2&3 Monitoring and Reporting Requirements, Page 42-43

Table 5. Test Methods, Detection Limits, Reporting Units and Applicable NALs~~/NELs~~

Parameter	Test Method	Discharge Type	Min. Detection Limit	Reporting Units	Numeric Action Levels	~~Numeric Effluent Limitation~~ (LUP Type 3) Receiving Water Monitoring Trigger
pH	Field test with calibrated portable instrument	Type 2 & 3	0.2	pH units	Lower = 6.5 upper = 8.5	Lower = 6.0 upper = 9.0
Turbidity	EPA 0180.1 and/or field test with calibrated portable instrument	Type 2 & 3	1	NTU	250 NTU	500 NTU
SSC	ASTM Method D 3977-97[13]	Type 3 if ~~NEL~~ Receiving Water Monitoring Trigger is exceeded	5	Mg/L	N/A	N/A
Bioassessment	(STE) Level I of (SAFIT),[14] fixed-count of 600 org/sample	Type 3 LUPs > 30 acres	N/A	N/A	N/A	N/A

i. LUP Type 2 & 3 Monitoring Methods

i. The LUP Type 2 or 3 discharger's project M&RP shall include a description of the following items:

(1) Visual observation locations, visual observation procedures, and visual observation follow-up and tracking procedures.

[13] ASTM, 1999, Standard Test Method for Determining Sediment Concentration in Water Samples: American Society of Testing and Materials, D 3977-97, Vol. 11.02, pp. 389-394

[14] The current SAFIT STEs (28 November 2006) list requirements for both the Level I and Level II taxonomic effort, and are located at: http://www.swrcb.ca.gov/swamp/docs/safit/ste_list.pdf. When new editions are published by SAFIT, they will supersede all previous editions. All editions will be posted at the State Water Board's SWAMP website.

(2) Sampling locations, and sample collection and handling procedures. This shall include detailed procedures for sample collection, storage, preservation, and shipping to the testing lab to assure that consistent quality control and quality assurance is maintained. Dischargers shall attach to the monitoring program a copy of the Chain of Custody form used when handling and shipping samples.

(3) Identification of the analytical methods and related method detection limits (if applicable) for each parameter required in Section M.4.f above.

ii. LUP Type 2 & 3 dischargers shall ensure that all sampling and sample preservation be in accordance with the current edition of "Standard Methods for the Examination of Water and Wastewater" (American Public Health Association). All monitoring instruments and equipment (including a discharger's own field instruments for measuring pH and turbidity) shall be calibrated and maintained in accordance with manufacturers' specifications to ensure accurate measurements. All laboratory analyses shall be conducted according to test procedures under 40 CFR Part 136, unless other test procedures have been specified in this General Permit or by the Regional Water Board. With the exception of field analysis conducted by the discharger for turbidity and pH, all analyses shall be sent to and conducted at a laboratory certified for such analyses by the State Department of Health Services (SSC exception). The LUP discharger shall conduct its own field analysis of pH and may conduct its own field analysis of turbidity if the discharger has sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform the field analysis.

j. LUP Type 2 & 3 Analytical Methods

LUP Type 2 & 3 dischargers shall refer to Table 5 above for test Methods, detection Limits, and reporting Units.

i. **pH**: LUP Type 2 & 3 dischargers shall perform pH analysis on-site with a calibrated pH meter or pH test kit. The LUP discharger shall record pH monitoring results on paper and retain these records in accordance with Section M.4.o, below.

ii. **Turbidity**: LUP Type 2 & 3 dischargers shall perform turbidity analysis using a calibrated turbidity meter (turbidimeter), either on-site or at an accredited lab. Acceptable test methods include Standard Method 2130 or USEPA Method 180.1. The results shall be recorded in the site log book in Nephelometric Turbidity Units (NTU).

iii. **Suspended sediment concentration (SSC)**: LUP Type 3 dischargers exceeding the~~if~~ turbidity ~~NEL~~, Receiving Water Monitoring Trigger shall perform SSC analysis using ASTM Method D3977-97.

iv. **Bioassessment**: LUP Type 3 dischargers shall perform bioassessment sampling and analysis according to Appendix 3 of this General Permit.

Attachment A, Section M.4, LUP Type 2&3 Monitoring and Reporting Requirements, Page 45

~~n. NEL Violation Report~~

~~i. All LUP Type 3 dischargers shall electronically submit all storm event sampling results to the State Water Board no later than 5 days after the conclusion of the storm event.~~

ii. In the event that a LUP Type 3 discharger has violated an applicable NEL, the discharger shall submit an NEL Violation Report to the State Water Board no later than 24 hours after the NEL exceedance has been identified.

iii. The LUP Type 3 discharger shall certify each NEL Violation Report in accordance with the Special Provisions for Construction Activity.

iv. The LUP Type 3 discharger shall retain an electronic or paper copy of each NEL Violation Report for a minimum of three years after the date the violation report is filed.

v. The LUP Type 3 discharger shall include in the NEL Violation Report:

(1) the analytical method(s), method reporting unit(s), and method detection limit(s) of each analytical parameter (analytical results that are less than the method detection limit shall be reported as "less than the method detection limit"); and
(2) the date, place, time of sampling, visual observation (inspections), and/or measurements, including precipitation.
(3) Description of the current on-site BMPs, and the proposed corrective actions taken to manage the NEL exceedance.

vi. Compliance Storm Exemption:
In the event that an applicable NEL has been exceeded during a storm event equal to or larger than the Compliance Storm Event (see Section F.2.c of this Attachment), the LUP Type 3 discharger shall report the on-site rain gauge and nearby governmental rain gauge readings for verification.

Attachment D, Section I, Risk Level 2 Monitoring and Reporting Requirements, Page 10-11

2. **Objectives**

The CSMP shall be developed and implemented to address the following objectives:

a. To demonstrate that the site is in compliance with the Discharge Prohibitions and applicable Numeric Action Levels (NALs~~)/Numeric Effluent Limitations (NELs)~~ of this General Permit.

b. To determine whether non-visible pollutants are present at the construction site and are causing or contributing to exceedances of water quality objectives.

c. To determine whether immediate corrective actions, additional Best Management Practice (BMP) implementation, or SWPPP revisions are necessary to reduce pollutants in storm water discharges and authorized non-storm water discharges.

d. To determine whether BMPs included in the SWPPP/Rain Event Action Plan (REAP) are effective in preventing or reducing pollutants in storm water discharges and authorized non-storm water discharges.

Attachment D, Section I.5.d, Risk Level 2 – Storm Water Discharge Water Quality Sampling Locations, Page 13

Effluent Sampling Locations

d. Risk Level 2 dischargers shall monitor and report site run-on from surrounding areas if there is reason to believe run-on may contribute to an exceedance of NALs ~~or NELs~~.

Attachment D, Section I.7, Risk Level 2- Storm Water Sample Collection and Handling Instructions, Page 14

a. Risk Level 2 dischargers shall refer to Table 3 below for test methods, detection limits, and reporting units.

b. Risk Level 2 dischargers shall ensure that testing laboratories will receive samples within 48 hours of the physical sampling (unless otherwise required by the laboratory), and shall use only the sample containers provided by the laboratory to collect and store samples.

c. Risk Level 2 dischargers shall designate and train personnel to collect, maintain, and ship samples in accordance with the Surface Water Ambient Monitoring Program's (SWAMP) 2008 Quality Assurance Program Plan (QAPrP).[15]

[15] Additional information regarding SWAMP's QAPrP ~~and QAMP~~ can be found at http://www.waterboards.ca.gov/water_issues/programs/swamp/.
QAPrP:http://www.waterboards.ca.gov/water_issues/programs/swamp/docs/qapp/swamp_qapp_master090108a.pdf.
~~QAMP: http://www.waterboards.ca.gov/water_issues/programs/swamp/qamp.shtml.~~

Attachment E, Section A.2, Effluent Standards, Page 1

2. Numeric –Risk Level 3 dischargers are subject to a pH NAL of 6.5-8.5, and a turbidity NAL of 250 NTU. ~~In addition, Risk Level 3 dischargers are subject to a pH NEL of 6.0-9.0 and a turbidity NEL of 500 NTU.~~

Attachment E, Section I, Risk Level 3 Monitoring and Reporting Requirements, Page 10

Table 2- Summary of Monitoring Requirements

Risk Level	Visual Inspections					Sample Collection	
	Quarterly Non-storm Water Discharge	Pre-storm Event		Daily Storm BMP	Post Storm	Storm Water Discharge	Receiving Water
		Baseline	REAP				
3	X	X	X	X	X	X	X[16]

Attachment E, Section I.2, Risk Level 3 Monitoring and Reporting Requirements, Page 11

2. Objectives

The CSMP shall be developed and implemented to address the following objectives:

a. To demonstrate that the site is in compliance with the Discharge Prohibitions and applicable Numeric Action Levels (NALs)~~/Numeric Effluent Limitations (NELs)~~ of this General Permit.

Attachment E, Section I.4.e, Risk Level 3- Water Quality Sampling and Analysis, Page 13

e. Risk 3 dischargers shall electronically submit all storm event sampling results to the State Water Board no later than ~~5~~ 10 days after the conclusion of the storm event.

Attachment E, Section I.4.f, Risk Level 3- Water Quality Sampling and Analysis, Page 13

~~f. Risk Level 3 discharger sites that have violated the turbidity daily average NEL shall analyze subsequent effluent samples for all the parameters specified in Section I.4.e, above, and Suspended Sediment Concentration (SSC).~~

Receiving Water Monitoring Requirements

g. In the event that a Risk Level 3 discharger's effluent exceeds ~~violates an NEL~~ the daily average receiving water monitoring trigger of 500 NTU turbidity or the daily average pH range 6.0-9.0 contained in this General Permit and has a direct discharge into receiving waters, the Risk Level 3 discharger shall subsequently sample receiving waters (RWs) for ~~all parameter(s) required in Section I.4.e above~~ turbidity, pH (if applicable), and SSC for the duration of coverage under this General Permit. If a Risk Level 3 discharger utilizing ATS with direct discharges into receiving waters discharges effluent that exceeds the NELs in this permit, the discharger shall subsequently sample RWs for turbidity, pH (if applicable), and SSC for the duration of coverage under this General Permit.

[16] When ~~NEL~~ receiving water monitoring trigger is exceeded.

h. Risk Level 3 dischargers disturbing 30 acres or more of the landscape and with direct discharges into receiving waters shall conduct or participate in benthic macroinvertebrate bioassessment of RWs prior to commencement of construction activity (See Appendix 3).

i. Risk Level 3 dischargers shall obtain RW samples in accordance with the Receiving Water sampling location section (Section I.5), below.

Attachment E, Section I.5, Risk Level 3- Storm Water Discharge Water Quality Sampling Locations, Page 13-14

Effluent Sampling Locations

a. Risk Level 3 dischargers shall perform sampling and analysis of storm water discharges to characterize discharges associated with construction activity from the entire project disturbed area.

b. Risk Level 3 dischargers shall collect effluent samples at all discharge points where storm water is discharged off-site.

c. Risk Level 3 dischargers shall ensure that storm water discharge collected and observed represent[17] the effluent in each drainage area based on visual observation of the water and upstream conditions.

d. Risk Level 3 dischargers shall monitor and report site run-on from surrounding areas if there is reason to believe run-on may contribute to an exceedance of NALs ~~or NELs~~.

e. Risk Level 3 dischargers who deploy an ATS on their site, or a portion on their site, shall collect ATS effluent samples and measurements from the discharge pipe or another location representative of the nature of the discharge.

f. Risk Level 3 dischargers shall select analytical test methods from the list provided in Table 3 below.

g. All storm water sample collection preservation and handling shall be conducted in accordance with Section I.7 “Storm Water Sample Collection and Handling Instructions” below.

Receiving Water Sampling Locations

h. **Upstream/up-gradient RW samples**: Risk Level 3 dischargers shall obtain any required upstream/up-gradient receiving water samples from a representative and accessible location as close as possible and upstream from the effluent discharge point.

i. **Downstream/down-gradient RW samples**: Risk Level 3 dischargers shall obtain any required downstream/down-gradient receiving water samples from a representative and accessible location as close as possible and downstream from the effluent discharge point.

[17] For example, if there has been concrete work recently in an area, or drywall scrap is exposed to the rain, a pH sample shall be taken of drainage from the relevant work area. Similarly, if sediment-laden water is flowing through some parts of a silt fence, samples shall be taken of the sediment laden water even if most water flowing through the fence is clear.

j. If two or more discharge locations discharge to the same receiving water, Risk Level 3 dischargers may sample the receiving water at a single upstream and downstream location.

Attachment E, Section I.7, Risk Level 3- Storm Water Sample Collection and Handling Instructions, Page 15

a. Risk Level 3 dischargers shall refer to Table 3 below for test methods, detection limits, and reporting units.

b. Risk Level 3 dischargers shall ensure that testing laboratories will receive samples within 48 hours of the physical sampling (unless otherwise required by the laboratory), and shall use only the sample containers provided by the laboratory to collect and store samples.

c. Risk Level 3 dischargers shall designate and train personnel to collect, maintain, and ship samples in accordance with the Surface Water Ambient Monitoring Program's (SWAMP) 2008 Quality Assurance Program Plan (QAPrP).[18]

Attachment E, Section I.9.d, Risk Level 3 – Analytical Methods, Page 17

a. Risk Level 3 dischargers shall refer to Table 3 below for test methods, detection limits, and reporting units.

b. **pH**: Risk Level 3 dischargers shall perform pH analysis on-site with a calibrated pH meter or a pH test kit. Risk Level 3 dischargers shall record pH monitoring results on paper and retain these records in accordance with Section I.14, below.

c. **Turbidity**: Risk Level 3 dischargers shall perform turbidity analysis using a calibrated turbidity meter (turbidimeter), either on-site or at an accredited lab. Acceptable test methods include Standard Method 2130 or U.S. EPA Method 180.1. The results will be recorded in the site log book in Nephelometric Turbidity Units (NTU).

d. **Suspended sediment concentration (SSC)**: Risk Level 3 dischargers that exceed the turbidity Receiving Water Monitoring Trigger shall perform SSC analysis using ASTM Method D3977-97.

e. **Bioassessment**: Risk Level 3 dischargers shall perform bioassessment sampling and analysis according to Appendix 3 of this General Permit.

Attachment E, Section I.10.b, Risk Level 3 – Non-Storm Water Discharge Monitoring Requirements, Page 18

b. Effluent Sampling Locations:

i. Risk Level 3 dischargers shall sample effluent at all discharge points where non-storm water and/or authorized non-storm water is discharged off-site.

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[18] Additional information regarding SWAMP's QAPrP ~~and QAMP~~ can be found at http://www.waterboards.ca.gov/water_issues/programs/swamp/.

QAPrP:http://www.waterboards.ca.gov/water_issues/programs/swamp/docs/qapp/swamp_qapp_master090108a.pdf
~~QAMP: http://www.waterboards.ca.gov/water_issues/programs/swamp/qamp.shtml~~

ii. Risk Level 3 dischargers shall send all non-storm water sample analyses to a laboratory certified for such analyses by the State Department of Health Services.
iii. Risk Level 3 dischargers shall monitor and report run-on from surrounding areas if there is reason to believe run-on may contribute to an exceedance of NALs ~~or NELs~~.

Attachment E, Section I.15, Risk Level 3- NAL Exceedance Report, Page 20

a. ~~In the event that any effluent sample exceeds an applicable NAL,~~ Risk Level 3 dischargers shall electronically submit all storm event sampling results to the State Water Board no later than 10 days after the conclusion of the storm event. The Regional Boards have the authority to require the submittal of an NAL Exceedance Report.

Attachment E, Section I.16, Risk Level 3- NEL Violation Report, Page 21

~~a. Risk Level 3 dischargers shall electronically submit all storm event sampling results to the State Water Board no later than 5 days after the conclusion of the storm event.~~

~~b. In the event that a discharger has violated an applicable NEL, Risk Level 3 dischargers shall submit an NEL Violation Report to the State Water Board within 24 hours after the NEL exceedance has been identified.~~

~~c. Risk Level 3 dischargers shall certify each NEL Violation Report in accordance with the Special Provisions for Construction Activity in this General Permit.~~

~~d. Risk Level 3 dischargers shall retain an electronic or paper copy of each NEL Violation Report for a minimum of three years after the date the annual report is filed.~~

~~e. Risk Level 3 dischargers shall include in the NEL Violation Report:~~

~~i. The analytical method(s), method reporting unit(s), and method detection limit(s) of each analytical parameter (analytical results that are less than the method detection limit shall be reported as "less than the method detection limit");~~

~~ii. The date, place, time of sampling, visual observation (inspections), and/or measurements, including precipitation; and~~

~~iii. A Description of the current onsite BMPs, and the proposed corrective actions taken to manage the NEL exceedance.~~

~~f. Compliance Storm Exemption - In the event that an applicable NEL has been exceeded during a storm event equal to or larger than the Compliance Storm Event, Risk level 3 discharger shall report the on-site rain gauge reading and nearby governmental rain gauge readings for verification.~~

Attachment E, Section I, Risk Level 3 Monitoring and Reporting Requirements, Page 23

Table 3 – Risk Level 3 Test Methods, Detection Limits, Reporting Units and Applicable NALs~~/NELs~~

Parameter	Test Method / Protocol	Discharge Type	Min. Detection Limit	Reporting Units	Numeric Action Level	Numeric Effluent Limitation	Receiving Water Monitoring Trigger
Ph	Field test with calibrated portable instrument	Risk Level 3 Discharges	0.2	pH units	lower NAL = 6.5 upper NAL = 8.5	~~lower NEL = 6.0~~ ~~upper NEL = 9.0~~ N/A	lower limit = 6.0 upper limit = 9.0
Turbidity	EPA 0180.1 and/or field test with calibrated portable instrument	Risk Level 3 Discharges other than ATS	1	NTU	250 NTU	~~500 NTU~~ N/A	500 NTU
		For ATS discharges	1	NTU	N/A	10 NTU for Daily Weighted Average & 20 NTU for Any Single Sample	10 NTU for Daily Weighted Average & 20 NTU for Any Single Sample
SSC	ASTM Method D 3977-97[19]	Risk Level 3 (if ~~NEL~~ Receiving Water Monitoring Trigger exceeded)	5	mg/L	N/A	N/A	N/A
Bioassessment	(STE) Level I of (SAFIT),[20] fixed-count of 600 org/sample	Risk Level 3 projects> 30 acres	N/A	N/A	N/A	N/A	N/A

[19] ASTM, 1999, Standard Test Method for Determining Sediment Concentration in Water Samples: American Society of Testing and Materials, D 3977-97, Vol. 11.02, pp. 389-394.

[20] The current SAFIT STEs (28 November 2006) list requirements for both the Level I and Level II taxonomic effort, and are located at: http://www.swrcb.ca.gov/swamp/docs/safit/ste_list.pdf. When new editions are published by SAFIT, they will supersede all previous editions. All editions will be posted at the State Water Board's SWAMP website.

Attachment F, Section I, ATS Effluent Discharge, Page 5-7

I. ATS Effluent Discharge

1. ATS effluent shall comply with all provisions and prohibitions in this General Permit, specifically the NELs.

2. NELs for discharges from an ATS:

   a. Turbidity of all ATS discharges shall be less than 10 NTU for daily flow-weighted average of all samples and 20 NTU for any single sample.

   b. Residual Chemical shall be < 10% of MATC[21] for the most sensitive species of the chemical used.

3. If an analytical effluent sampling result ~~is outside the range of pH NELs (i.e., is below the lower NEL for pH or exceeds the upper NEL for pH) or~~ exceeds the turbidity NEL (as listed in Table 1), the discharger is in violation of this General Permit and shall electronically file the results in violation within 24-hours of obtaining the results.

[21] The Maximum Allowable Threshold Concentration (MATC) is the allowable concentration of residual, or dissolved, coagulant/flocculant in effluent. The MATC shall be coagulant/flocculant-specific, and based on toxicity testing conducted by an independent, third-party laboratory. The MATC is equal to the geometric mean of the NOEC (No Observed Effect Concentration) and LOEC (Lowest Observed Effect Concentration) Acute and Chronic toxicity results for most sensitive species determined for the specific coagulant. The most sensitive species test shall be used to determine the MATC.

APPENDIX 5:
Glossary

Active Areas of Construction
All areas subject to land surface disturbance activities related to the project including, but not limited to, project staging areas, immediate access areas and storage areas. All previously active areas are still considered active areas until final stabilization is complete. [The construction activity Phases used in this General Permit are the Preliminary Phase, Grading and Land Development Phase, Streets and Utilities Phase, and the Vertical Construction Phase.]

Active Treatment System (ATS)
A treatment system that employs chemical coagulation, chemical flocculation, or electrocoagulation to aid in the reduction of turbidity caused by fine suspended sediment.

Acute Toxicity Test
A chemical stimulus severe enough to rapidly induce a negative effect; in aquatic toxicity tests, an effect observed within 96 hours or less is considered acute.

Air Deposition
Airborne particulates from construction activities.

Approved Signatory
A person who has been authorized by the Legally Responsible Person to sign, certify, and electronically submit Permit Registration Documents, Notices of Termination, and any other documents, reports, or information required by the General Permit, the State or Regional Water Board, or U.S. EPA. The Approved Signatory must be one of the following:

1. For a corporation or limited liability company: a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (a) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation or limited liability company; or (b) the manager of the facility if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

2. For a partnership or sole proprietorship: a general partner or the proprietor, respectively;

3. For a municipality, State, Federal, or other public agency: a principal executive officer, ranking elected official, city manager, council president, or any other authorized public employee with managerial responsibility over the

construction or land disturbance project (including, but not limited to, project manager, project superintendent, or resident engineer);

4. For the military: any military officer or Department of Defense civilian, acting in an equivalent capacity to a military officer, who has been designated;

5. For a public university: an authorized university official;

6. For an individual: the individual, because the individual acts as both the Legally Responsible Person and the Approved Signatory; or

7. For any type of entity not listed above (e.g. trusts, estates, receivers): an authorized person with managerial authority over the construction or land disturbance project.

Beneficial Uses
As defined in the California Water Code, beneficial uses of the waters of the state that may be protected against quality degradation include, but are not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

Best Available Technology Economically Achievable (BAT)
As defined by USEPA, BAT is a technology-based standard established by the Clean Water Act (CWA) as the most appropriate means available on a national basis for controlling the direct discharge of toxic and nonconventional pollutants to navigable waters. The BAT effluent limitations guidelines, in general, represent the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory.

Best Conventional Pollutant Control Technology (BCT)
As defined by USEPA, BCT is a technology-based standard for the discharge from existing industrial point sources of conventional pollutants including biochemical oxygen demand (BOD), total suspended sediment (TSS), fecal coliform, pH, oil and grease.

Best Professional Judgment (BPJ)
The method used by permit writers to develop technology-based NPDES permit conditions on a case-by-case basis using all reasonably available and relevant data.

Best Management Practices (BMPs)
BMPs are scheduling of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants. BMPs also include treatment requirements, operating procedures,

and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Chain of Custody (COC)
Form used to track sample handling as samples progress from sample collection to the analytical laboratory. The COC is then used to track the resulting analytical data from the laboratory to the client. COC forms can be obtained from an analytical laboratory upon request.

Coagulation
The clumping of particles in a discharge to settle out impurities, often induced by chemicals such as lime, alum, and iron salts.

Common Plan of Development
Generally a contiguous area where multiple, distinct construction activities may be taking place at different times under one plan. A plan is generally defined as any piece of documentation or physical demarcation that indicates that construction activities may occur on a common plot. Such documentation could consist of a tract map, parcel map, demolition plans, grading plans or contract documents. Any of these documents could delineate the boundaries of a common plan area. However, broad planning documents, such as land use master plans, conceptual master plans, or broad-based CEQA or NEPA documents that identify potential projects for an agency or facility are not considered common plans of development.

Daily Average Discharge
The discharge of a pollutant measured during any 24-hour period that reasonably represents a calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged during the day. For pollutants with limitations expressed in other units of measurement (e.g., concentration) the daily discharge is calculated as the average measurement of the pollutant throughout the day (40 CFR 122.2). In the case of pH, the pH must first be converted from a log scale.

Debris
Litter, rubble, discarded refuse, and remains of destroyed inorganic anthropogenic waste.

Direct Discharge
A discharge that is routed directly to waters of the United States by means of a pipe, channel, or ditch (including a municipal storm sewer system), or through surface runoff.

Discharger
The Legally Responsible Person (see definition) or entity subject to this General Permit.

Dose Rate (for ATS)
In exposure assessment, dose (e.g. of a chemical) per time unit (e.g. mg/day), sometimes also called dosage.

Drainage Area
The area of land that drains water, sediment, pollutants, and dissolved materials to a common outlet.

Effluent
Any discharge of water by a discharger either to the receiving water or beyond the property boundary controlled by the discharger.

Effluent Limitation
Any numeric or narrative restriction imposed on quantities, discharge rates, and concentrations of pollutants which are discharged from point sources into waters of the United States, the waters of the contiguous zone, or the ocean.

Erosion
The process, by which soil particles are detached and transported by the actions of wind, water, or gravity.

Erosion Control BMPs
Vegetation, such as grasses and wildflowers, and other materials, such as straw, fiber, stabilizing emulsion, protective blankets, etc., placed to stabilize areas of disturbed soils, reduce loss of soil due to the action of water or wind, and prevent water pollution.

Field Measurements
Testing procedures performed in the field with portable field-testing kits or meters.

Final Stabilization
All soil disturbing activities at each individual parcel within the site have been completed in a manner consistent with the requirements in this General Permit.

First Order Stream
Stream with no tributaries.

Flocculants
Substances that interact with suspended particles and bind them together to form flocs.

Good Housekeeping BMPs
BMPs designed to reduce or eliminate the addition of pollutants to construction site runoff through analysis of pollutant sources, implementation of proper handling/disposal practices, employee education, and other actions.

Grading Phase (part of the Grading and Land Development Phase)
Includes reconfiguring the topography and slope including; alluvium removals; canyon cleanouts; rock undercuts; keyway excavations; land form grading; and stockpiling of select material for capping operations.

Hydromodification
Hydromodification is the alteration of the hydrologic characteristics of coastal and non-coastal waters, which in turn could cause degradation of water resources. Hydromodification can cause excessive erosion and/or sedimentation rates, causing excessive turbidity, channel aggradation and/or degradation.

Identified Organisms
Organisms within a sub-sample that is specifically identified and counted.

Inactive Areas of Construction
Areas of construction activity that are not active and those that have been active and are not scheduled to be re-disturbed for at least 14 days.

Index Period
The period of time during which bioassessment samples must be collected to produce results suitable for assessing the biological integrity of streams and rivers. Instream communities naturally vary over the course of a year,and sampling during the index period ensures that samples are collected during a time frame when communities are stable so that year-to-year consistency is obtained. The index period approach provides a cost-effective alternative to year-round sampling. Furthermore, sampling within the appropriate index period will yield results that are comparable to the assessment thresholds or criteria for a given region, which are established for the same index period. Because index periods differ for different parts of the state, it is essential to know the index period for your area.

K Factor
The soil erodibility factor used in the Revised Universal Soil Loss Equation (RUSLE). It represents the combination of detachability of the soil, runoff potential of the soil, and the transportability of the sediment eroded from the soil.

Legally Responsible Person
The Legally Responsible Person (LRP) will typically be the project proponent. The categories of persons or entities that are eligible to serve as the LRP are set forth below. For any construction or land disturbance project where multiple persons or entities are eligible to serve as the LRP, those persons or entities

shall select a single LRP. In exceptional circumstances, a person or entity that qualifies as the LRP may provide written authorization to another person or entity to serve as the LRP. In such a circumstance, the person or entity that provides the authorization retains all responsibility for compliance with the General Permit. Except as provided in category 2(d), a contractor who does not satisfy the requirements of any of the categories below is not qualified to be an LRP.

The following persons or entities may serve as an LRP:

1. A person, company, agency, or other entity that possesses a real property interest (including, but not limited to, fee simple ownership, easement, leasehold, or other rights of way) in the land upon which the construction or land disturbance activities will occur for the regulated site.

2. In addition to the above, the following persons or entities may also serve as an LRP:

    a. For linear underground/overhead projects, the utility company, municipality, or other public or private company or agency that owns or operates the LUP;

    b. For land controlled by an estate or similar entity, the person who has day-to-day control over the land (including, but not limited to, a bankruptcy trustee, receiver, or conservator);

    c. For pollution investigation and remediation projects, any potentially responsible party that has received permission to conduct the project from the holder of a real property interest in the land; or

    d. For U.S. Army Corp of Engineers projects, the U.S. Army Corps of Engineers may provide written authorization to its bonded contractor to serve as the LRP, provided, however, that the U.S. Army Corps of Engineers is also responsible for compliance with the general permit, as authorized by the Clean Water Act or the Federal Facilities Compliance Act.

Likely Precipitation Event
Any weather pattern that is forecasted to have a 50% or greater chance of producing precipitation in the project area. The discharger shall obtain likely precipitation forecast information from the National Weather Service Forecast Office (e.g., by entering the zip code of the project's location at http://www.srh.noaa.gov/forecast).

Maximum Allowable Threshold Concentration (MATC)
The allowable concentration of residual, or dissolved, coagulant/flocculant in effluent. The MATC shall be coagulant/flocculant-specific, and based on toxicity

testing conducted by an independent, third-party laboratory. A typical MATC would be:

The MATC is equal to the geometric mean of the NOEC (No Observed Effect Concentration) and LOEC (Lowest Observed Effect Concentration) Acute and Chronic toxicity results for most sensitive species determined for the specific coagulant. The most sensitive species test shall be used to determine the MATC.

Natural Channel Evolution
The physical trend in channel adjustments following a disturbance that causes the river to have more energy and degrade or aggrade more sediment. Channels have been observed to pass through 5 to 9 evolution types. Once they pass though the suite of evolution stages, they will rest in a new state of equilibrium.

Non-Storm Water Discharges
Discharges are discharges that do not originate from precipitation events. They can include, but are not limited to, discharges of process water, air conditioner condensate, non-contact cooling water, vehicle wash water, sanitary wastes, concrete washout water, paint wash water, irrigation water, or pipe testing water.

Non-Visible Pollutants
Pollutants associated with a specific site or activity that can have a negative impact on water quality, but cannot be seen though observation (ex: chlorine). Such pollutants being discharged are not authorized.

Numeric Action Level (NAL)
Level is used as a warning to evaluate if best management practices are effective and take necessary corrective actions. Not an effluent limit.

Original Sample Material
The material (i.e., macroinvertebrates, organic material, gravel, etc.) remaining after the subsample has been removed for identification.

pH
Unit universally used to express the intensity of the acid or alkaline condition of a water sample. The pH of natural waters tends to range between 6 and 9, with neutral being 7. Extremes of pH can have deleterious effects on aquatic systems.

Post-Construction BMPs
Structural and non-structural controls which detain, retain, or filter the release of pollutants to receiving waters after final stabilization is attained.

Preliminary Phase (Pre-Construction Phase - Part of the Grading and Land Development Phase)
Construction stage including rough grading and/or disking, clearing and grubbing operations, or any soil disturbance prior to mass grading.

Project

Qualified SWPPP Developer
Individual who is authorized to develop and revise SWPPPs.

Qualified SWPPP Practitioner
Individual assigned responsibility for non-storm water and storm water visual observations, sampling and analysis, and responsibility to ensure full compliance with the permit and implementation of all elements of the SWPPP, including the preparation of the annual compliance evaluation and the elimination of all unauthorized discharges.

Qualifying Rain Event
Any event that produces 0.5 inches or more precipitation with a 48 hour or greater period between rain events.

R Factor
Erosivity factor used in the Revised Universal Soil Loss Equation (RUSLE). The R factor represents the erosivity of the climate at a particular location. An average annual value of R is determined from historical weather records using erosivity values determined for individual storms. The erosivity of an individual storm is computed as the product of the storm's total energy, which is closely related to storm amount, and the storm's maximum 30-minute intensity.

Rain Event Action Plan (REAP)
Written document, specific for each rain event, that when implemented is designed to protect all exposed portions of the site within 48 hours of any likely precipitation event.

Remaining Sub sampled Material
The material (e.g., organic material, gravel, etc.) that remains after the organisms to be identified have been removed from the subsample for identification. (Generally, no macroinvertebrates are present in the remaining subsampled material, but the sample needs to be checked and verified using a complete Quality Assurance (QA) plan)

Routine Maintenance
Activities intended to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

Runoff Control BMPs
Measures used to divert runon from offsite and runoff within the site.

Run-on
Discharges that originate offsite and flow onto the property of a separate project site.

Revised Universal Soil Loss Equation (RUSLE)
Empirical model that calculates average annual soil loss as a function of rainfall and runoff erosivity, soil erodibility, topography, erosion controls, and sediment controls.

Sampling and Analysis Plan
Document that describes how the samples will be collected, under what conditions, where and when the samples will be collected, what the sample will be tested for, what test methods and detection limits will be used, and what methods/procedures will be maintained to ensure the integrity of the sample during collection, storage, shipping and testing (i.e., quality assurance/quality control protocols).

Sediment
Solid particulate matter, both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water, gravity, or ice and has come to rest on the earth's surface either above or below sea level.

Sedimentation
Process of deposition of suspended matter carried by water, wastewater, or other liquids, by gravity. It is usually accomplished by reducing the velocity of the liquid below the point at which it can transport the suspended material.

Sediment Control BMPs
Practices that trap soil particles after they have been eroded by rain, flowing water, or wind. They include those practices that intercept and slow or detain the flow of storm water to allow sediment to settle and be trapped (e.g., silt fence, sediment basin, fiber rolls, etc.).

Settleable Solids (SS)
Solid material that can be settled within a water column during a specified time frame. It is typically tested by placing a water sample into an Imhoff settling cone and then allowing the solids to settle by gravity for a given length of time. Results are reported either as a volume (mL/L) or a mass (mg/L) concentration.

Sheet Flow
Flow of water that occurs overland in areas where there are no defined channels where the water spreads out over a large area at a uniform depth.

Site

Soil Amendment
Any material that is added to the soil to change its chemical properties, engineering properties, or erosion resistance that could become mobilized by storm water.

Streets and Utilities Phase
Construction stage including excavation and street paving, lot grading, curbs, gutters and sidewalks, public utilities, public water facilities including fire hydrants, public sanitary sewer systems, storm sewer system and/or other drainage improvements.

Structural Controls
Any structural facility designed and constructed to mitigate the adverse impacts of storm water and urban runoff pollution

Suspended Sediment Concentration (SSC)
The measure of the concentration of suspended solid material in a water sample by measuring the dry weight of all of the solid material from a known volume of a collected water sample. Results are reported in mg/L.

Total Suspended Solids (TSS)
The measure of the suspended solids in a water sample includes inorganic substances, such as soil particles and organic substances, such as algae, aquatic plant/animal waste, particles related to industrial/sewage waste, etc. The TSS test measures the concentration of suspended solids in water by measuring the dry weight of a solid material contained in a known volume of a sub-sample of a collected water sample. Results are reported in mg/L.

Toxicity
The adverse response(s) of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies.

Turbidity
The cloudiness of water quantified by the degree to which light traveling through a water column is scattered by the suspended organic and inorganic particles it contains. The turbidity test is reported in Nephelometric Turbidity Units (NTU) or Jackson Turbidity Units (JTU).

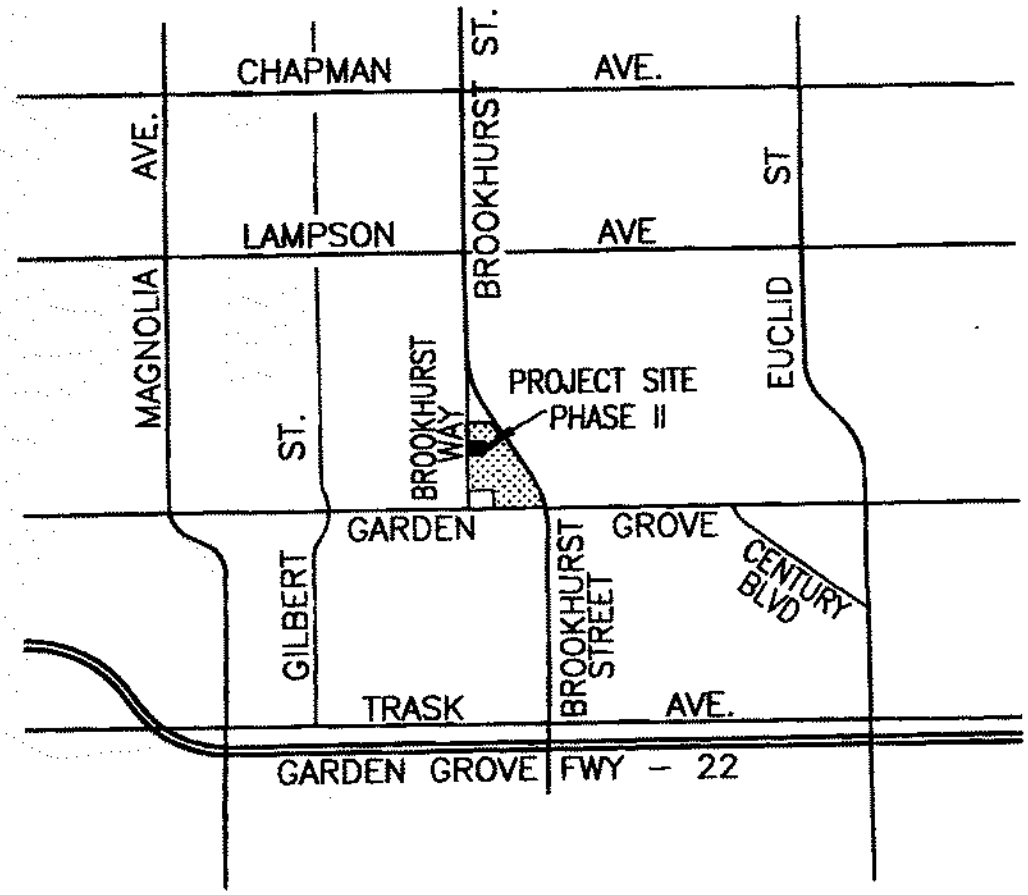
Vertical Construction Phase
The Build out of structures from foundations to roofing, including rough landscaping.

Waters of the United States
Generally refers to surface waters, as defined by the federal Environmental Protection Agency in 40 C.F.R. § 122.2.[1]

Water Quality Objectives (WQO)
Water quality objectives are defined in the California Water Code as 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 specific area.

[1] The application of the definition of "waters of the United States" may be difficult to determine; there are currently several judicial decisions that create some confusion. If a landowner is unsure whether the discharge must be covered by this General Permit, the landowner may wish to seek legal advice.

Appendix B: Site Maps



VICINITY MAP

TG: 798–D6 NTS

N

ROUGH GRADING PLAN
BROOKHURST TRIANGLE PHASE II
GARDEN GROVE, CA

GRADING GENERAL NOTES:

48 HOUR ADVANCE NOTICE IS REQUIRED PRIOR TO THE START OF ANY WORK (714) 741-5887

1. ALL WORK SHALL CONFORM TO THE CITY OF GARDEN GROVE LATEST ORDINANCE NO. 2835, STANDARD PLANS AND SPECIFICATIONS, THE 2021 STANDARD SPECIFICATIONS OF THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION, THE CITY OF GARDEN GROVE ORDINANCE NO. 2590, THE 2022 CALIFORNIA BUILDING CODE, AND THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREENBOOK) 2021 EDITION.
2. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND NOTIFY THE CITY OF GARDEN GROVE WATER DEPARTMENT AND ALL OTHER UTILITY COMPANIES A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL PHASES OF CONSTRUCTION WITH THE VARIOUS UTILITY COMPANIES INVOLVED.
3. SUBMITTAL DOCUMENT REQUIREMENTS SHALL AT A MINIMUM, CONFORM TO ALL REQUIREMENTS OF SECTIONS 107 AND 110 OF THE CALIFORNIA BUILDING CODE, INCLUDING THE FOLLOWING:

   A. GRADING PLAN WITH SITE PLAN SHOWING TO SCALE THE SIZE AND LOCATION OF NEW CONSTRUCTION AND EXISTING STRUCTURES ON THE SITE AND ADJACENT TO THE SITE A MINIMUM OF THIRTY FEET (30') FROM THE PROPERTY BOUNDARY;

   B. HORIZONTAL AND VERTICAL DISTANCES AND ELEVATIONS IN RELATION TO THE PROPERTY LOT LINES AND NEAREST CITY BENCHMARKS FOR TOPOGRAPHIC CONTROL. (TEMPORARY BENCH MARKS SHALL NOT BE USED FOR TOPOGRAPHIC CONTROL);

   C. EXISTING STREET GRADES AND PROPOSED DESIGN GRADES FOR ALL PROJECT FRONTAGES AND ADJACENT ACCESS IMPROVEMENTS.

   D. ALL SITE/GRADING PLANS SHALL BE BASED UPON AN ACCURATE BOUNDARY LINE SURVEY WITH MONUMENT AND HORIZONTAL/VERTICAL CONTROL DISPOSITION SHOWN ON THE PLANS;(SECTION 107.2.5 CALIFORNIA BUILDING CODE);

   E. DEMOLITION WORK FOR IMPROVEMENTS TO BE REMOVED AND/OR PROTECTED IN PLACE;

   F. ANY PHASING OF IMPROVEMENTS AS ALLOWED BY THE CITY.
4. THE CONTRACTOR SHALL OBTAIN A SEPARATE PERMIT FOR ALL WORK WITHIN THE STREET RIGHT-OF-WAY. TEMPORARY A.C. PAVING SHALL BE PLACED WHERE SIDEWALK REMOVALS EXTEND LONGER THAN (24) TWENTY-FOUR HOURS AS DIRECTED BY THE CITY INSPECTOR.
5. DUST SHALL BE CONTROLLED BY WATERING AND IN FULL CONFORMANCE WITH THE REQUIREMENTS OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT GUIDELINES.
6. SANITARY FACILITIES SHALL BE MAINTAINED ON SITE. FACILITIES SHALL BE LOCATED SUCH THAT SPILLS SHALL BE CONTAINED AND AT NO TIME ENTER A PUBLIC OR PRIVATE STORM DRAIN.
7. PRIOR TO THE POURING OF ANY FOUNDATION MATERIALS, THE PAD ELEVATION AND THE BUILDING CORNERS MUST BE VERIFIED IN WRITING TO THE BUILDING SECTION BY THE REGISTERED CIVIL ENGINEER OR THE LICENSED LAND SURVEYOR IN CONFORMANCE WITH SECTION 1612 OF THE CALIFORNIA BUILDING CODE.
8. NO FILL SHALL BE PLACED UNTIL THE BUILDING OFFICIAL AND THE SOILS ENGINEER APPROVE PREPARATION OF GROUND.
9. FILLS SHALL BE COMPACTED THROUGHOUT TO 90% DENSITY AS DETERMINED BY A.S.T.M. D1557, A.S.T.M. D1556 (SAND CONE), AND/OR A.S.T.M. D2922, (NUCLEAR). SAND CONE METHOD MUST REPRESENT NO MORE THAN 20% OF TESTING. DRIVE TUBE TESTING IS NOT PERMITTED.
10. FILL SLOPES SHALL BE NO STEEPER THAN 2 HORIZONTAL TO 1 VERTICAL AND SHALL HAVE NOT LESS THAN 90% COMPACTION OUT TO THE FINISH SURFACE.
11. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE UTILITIES OF EVERY NATURE WHETHER SHOWN HEREON OR NOT AND TO PROTECT THEM FROM DAMAGE. THE CONTRACTOR SHALL BEAR TOTAL COST OF REPAIR OR REPLACEMENT OF SAID UTILITIES DAMAGED BY OPERATIONS.
12. IN ACCORDANCE WITH SPECIFICATIONS AND CODES REFERENCED IN PARAGRAPH 1; CONSTRUCTION DOCUMENTS AND A SCHEDULE FOR DEMOLITION SHALL BE SUBMITTED WHERE REQUIRED BY THE CITY ENGINEERING DIVISION AND OR BUILDING SERVICES DIVISION. WHERE SUCH INFORMATION IS REQUIRED, NO WORK SHALL BE DONE UNTIL SUCH CONSTRUCTION DOCUMENTS OR SCHEDULE, OR BOTH, ARE APPROVED.
13. THE CONTRACTOR SHALL MAKE PROVISIONS TO HAVE ALL EXISTING ON-SITE SEWER, WATER, GAS, ELECTRIC, IRRIGATION OR TELEPHONE LINES REMOVED, ABANDONED, OR RELOCATED IF THEY ARE INTERFERING WITH THE PROPOSED CONSTRUCTION.
14. THE CONTRACTOR SHALL REMOVE, CAP, AND ABANDON ALL EXISTING ON-SITE WATER WELLS, CESSPOOLS, OR SEPTIC TANKS ENCOUNTERED DURING GRADING IN ACCORDANCE WITH THE LATEST EDITION OF THE UNIFORM PLUMBING CODE, THE DEPARTMENT OF HEALTH AND THE CITY MUNICIPAL CODE.
15. ANY BROKEN OR DAMAGED IMPROVEMENTS ON ADJACENT PRIVATE PROPERTY OR PUBLIC RIGHT-OF-WAY SHALL BE REPLACED OR REPAIRED IN KIND AS DIRECTED BY THE CITY ENGINEER.
16. TEMPORARY TRAFFIC CONTROL AND PEDESTRIAN ACCESS AND PROTECTION DURING CONSTRUCTION SHALL CONFORM TO THE DEPARTMENT OF PUBLIC WORKS AND DEVELOPMENT'S LATEST "PUBLIC CONVENIENCE AND TRAFFIC CONTROL SPECIFICATION" SHEET, AND THE "WATCH MANUAL" AS PUBLISHED BY THE APWA, CHAPTER 33 OF THE CALIFORNIA BUILDING CODE AND THE REQUIREMENTS OF THE CITY ENGINEER.
17. ALL TRAFFIC CONTROL DEVICES SHALL BE INSTALLED, RELOCATED, OR REMOVED TO THE SATISFACTION OF THE CITY TRAFFIC ENGINEER.
18. THE CONTRACTOR SHALL NOTIFY THE CITY ENGINEER PRIOR TO THE REMOVAL, PARTIAL REMOVAL OR TRIMMING OF TREES OVERHANGING OR LYING PARTIALLY OR FULLY WITHIN EXISTING RIGHT-OF-WAY.
19. THE SOILS REPORT PREPARED BY CAL LAND ENGINEERING, INC., DATED OCTOBER 17, 2013 AND GEOTECHNICAL SOLUTIONS, INC., DATED NOVEMBER 12, 2013 AND ALL RECOMMENDATIONS CONTAINED THEREIN, SHALL BE MADE A PART OF THESE PLANS. SOILS REPORTS AND TESTING SHALL BE DONE BY A CIVIL OR GEOTECHNICAL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA.
20. PRIOR TO THE IMPORTATION OF ANY SOIL MATERIAL TO THIS SITE, AN INVESTIGATION SHALL BE MADE AND A REPORT FILED WITH THE BUILDING OFFICIAL. USE OF THE SOIL WILL NOT BE PERMITTED IF IT IS DETERMINED BY THE TEST RESULTS THAT THE EXPANSION INDEX IS IN EXCESS OF TWENTY (20). AN "R" VALUE TEST SHALL ALSO BE PERFORMED ON IMPORT SOIL AND RESULTS SUBMITTED TO THE GRADING ENGINEER. IMPORT SOIL SHALL BE CLEAN AND FREE OF ANY DEBRIS. FAILURE TO CONFORM TO THESE REQUIREMENTS SHALL BE CAUSE FOR REMOVAL AND REPLACEMENT OF SAID SOIL.
21. STATEMENT OF QUANTITIES - INCLUDING ALL REMEDIAL GRADING AS RECOMMENDED IN THE SOILS REPORT;

RAW CUT	23600 CUBIC YARDS (GROSS)
RAW FILL	900 CUBIC YARDS (GROSS)
OVER EXCAVATION:	5000 CUBIC YARDS (GROSS)

22. ALL EARTHWORK AND OTHER QUANTITIES ARE ESTIMATED FOR BONDING AND PLAN CHECK FEE PURPOSES ONLY - NOT FOR BIDDING PURPOSES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE ACCURACY OF THE ESTIMATE.
23. WATER METER AND SERVICE TO BE INSTALLED BY CITY FORCES UPON PAYMENT OF APPLICABLE FEES.
24. PRIOR TO PLACEMENT OF PARKING LOT STRUCTURAL SECTION, DEVELOPER SHALL COMPACT SUB-GRADE TO 90% MM. RELATIVE COMPACTION. AGGREGATE BASE SHALL BE CLASS II 3/4" COMPACTED TO 90% RELATIVE COMPACTION. THE DEVELOPER'S GEOTECHNICAL ENGINEER SHALL SUBMIT COMPACTION TESTS TO THE CITY PER ASTM D1557 (METHOD C FOR AGGREGATE BASE). ASPHALT CONCRETE SHALL BE CLASS C2 DENSE MEDIUM ASPHALT CONCRETE MIX PER TABLE 203-6.4.3(A) (THE "GREENBOOK" 2021 EDITION CONFORMING TO PAGE 70-10.)
25. THE CONTRACTOR SHALL INSTALL AND MAINTAIN A SIX (6) FOOT HIGH CHAIN LINK FENCE TO SECURE THE PROJECT PERIMETER. THE FENCE SHALL BE REMOVED UPON CONSTRUCTION OF PERMANENT PERIMETER FENCING AND/OR COMPLETION OF THE PROJECT.
26. CONCRETE FORM ELEVATIONS FOR CURB AND DRAINAGE GUTTERS ARE TO BE VERIFIED FOR PLAN GRADE BY A LICENSED SURVEYOR PRIOR TO CONCRETE POUR. ANY DEVIATIONS FROM THESE APPROVED PLANS SHALL REQUIRE APPROVAL BY THE CITY ENGINEER OR CORRECTED PRIOR TO PLACEMENT OF CONCRETE BY SUBMITTAL OF A REQUEST FOR REVISION TO THE APPROVED PLAN.
27. UPON COMPLETION OF ALL WORK, THE REGISTERED CIVIL ENGINEER OF RECORD SHALL CERTIFY IN WRITING THAT THE PROJECT IS IN COMPLIANCE WITH THE LINES, GRADES, AND ELEVATIONS ON THE APPROVED GRADING PLAN. IF THE BUILDING IS IN A FLOOD ZONE HAZARD AREA, THE CIVIL ENGINEER SHALL SUPPLY ADDITIONAL CERTIFICATIONS VERIFYING THAT THE LOWEST FINISH FLOOR ELEVATION(S) COMPLY WITH THE FEMA FLOOD HAZARD ELEVATIONS AS REQUIRED UNDER 1612A OF THE CALIFORNIA BUILDING CODE. (CERTIFICATION FORMS SHALL BE OBTAINED FROM THE CITY AND WET-SIGNED BY THE ENGINEER OF RECORD).
28. ALL CONCRETE FOR CURBS, GUTTERS, AND SIDEWALKS SHALL BE 2500 PSI AT 28 DAYS. CATCH BASINS AND TRUCK WELLS SHALL BE 3000 PSI AT 28 DAYS.
29. PROVIDE THE FOLLOWING SIGNING AND STRIPING. EACH PARKING SPACE RESERVED FOR PERSONS WITH PHYSICAL DISABILITIES SHALL BE IDENTIFIED BY A REFLECTORIZED SIGN PERMANENTLY POSTED IMMEDIATELY ADJACENT TO AND VISIBLE FROM EACH STALL OR SPACE, CONSISTING OF A PROFILE VIEW OF A WHEELCHAIR WITH OCCUPANT IN WHITE ON A DARK BLUE BACKGROUND. THE SIGN SHALL NOT BE SMALLER THAN 70 SQUARE INCHES IN AREA AND WHEN IN THE PATH OF TRAVEL, SHALL BE POSTED AT A MINIMUM HEIGHT OF 80 INCHES FROM THE BOTTOM OF THE SIGN TO THE PARKING SPACE FINISHED GRADE. SIGNS MAY ALSO BE CENTERED ON THE WALL AT THE INTERIOR END OF THE PARKING SPACE AT A MINIMUM HEIGHT OF 36 INCHES FROM THE PARKING SPACE FINISHED GRADE, GROUND OR SIDEWALK. PARKING STALL LAYOUT SHALL CONFORM TO TITLE 24 2022 CALIFORNIA BUILDING CODE, CHAPTERS HA AND 11B, AND THE DEPARTMENT OF JUSTICE STANDARDS, LATEST EDITION.
30. AN ADDITIONAL SIGN SHALL ALSO BE POSTED, IN A CONSPICUOUS PLACE, AT EACH ENTRANCE TO OFF-STREET PARKING FACILITIES, OR IMMEDIATELY ADJACENT TO AND VISIBLE FROM EACH STALL OR SPACE. THE SIGN SHALL BE NOT LESS THAN 17 INCHES X 22 INCHES IN SIZE WITH LETTERING NOT LESS THAN ONE (1) INCH IN HEIGHT, WHICH CLEARLY AND CONSPICUOUSLY STATES THE FOLLOWING:
31. "UNAUTHORIZED VEHICLES PARKED IN DESIGNATED HANDICAPPED SPACES NOT DISPLAYING DISTINGUISHING PLACARDS OR LICENSE PLATES ISSUED FOR PHYSICALLY DISABLED PERSONS MAY BE TOWED AWAY AT OWNER'S EXPENSE. TOWED VEHICLE MAY BE RECLAIMED BY TELEPHONING (714) 741-5704

    *VERJFY NUMBER WITH POLICE DEPARTMENT PRIOR TO FABRICATION OF SIGNS.
32. IN ADDITION TO THE ABOVE-REQUIRED SIGNS, THE SURFACE OF EACH PARKING SPACE SHALL HAVE A SURFACE IDENTIFICATION OF EITHER OF THE FOLLOWING:

    A. OUTLINE THE STALL IN BLUE AND PROVIDE A PROFILE VIEW OF A WHEELCHAIR WITH OCCUPANT IN WHITE (OR OTHER CONTRASTING COLOR).

    B. PROVIDE A 36 INCHES X 36 INCHES PROFILE VIEW OF A WHEELCHAIR WITH OCCUPANT IN WHITE ON A BLUE BACKGROUND. SYMBOL SHALL BE LOCATED SUCH THAT IT IS VISIBLE TO A TRAFFIC ENFORCEMENT OFFICER WHEN THE VEHICLE IS PARKED.

    C. ALL COMPACT PARKING STALLS SHALL BE INDIVIDUALLY STRIPED AND MARKED ON THE PARKING SPACE SURFACE. ALL PARKING STALLS SHALL BE HAIRPIN STRIPED. ALL CURBS NOT ASSOCIATED WITH A PARKING STALL SHALL BE PAINTED RED.
33. ALL CURB RAMPS SHALL HAVE A GROOVED BORDER 12 INCHES WIDE, AT THE LEVEL SURFACE OR LANDING OF THE SIDEWALK ALONG THE TOP OF THE RISE AND EACH SIDE APPROXIMATELY SPACED 3/4 INCHES ON CENTER OF THE GROOVES. ALL CURB RAMPS CONSTRUCTED BETWEEN THE FACE OF THE CURB AND THE STREET RIGHT OF WAY SHALL HAVE A GROOVED BORDER AT THE LEVEL SURFACE OR LANDING OF THE SIDEWALK. RAMPS SHALL BE SHOWN ON THESE APPROVED PLANS AND IN CONFORMANCE WITH TITLE 24, 2022 CALIFORNIA BUILDING CODE, CHAPTER 11A AND 11B, AND THE DEPARTMENT OF JUSTICE STANDARDS, LATEST EDITION.
34. FOR EXTERIOR WALKWAYS AND PATHS OF TRAVEL, OBJECTS PROJECTING FROM WALLS (FOR EXAMPLE, TELEPHONES) WITH THEIR LEADING EDGES BETWEEN 27 INCHES AND 80 INCHES ABOVE THE FINISHED FLOOR SHALL PROTRUDE NO MORE THAN 4 INCHES INTO WALKS, HALLS, CORRIDORS, PASSAGEWAYS OR AISLES. OBJECTS MOUNTED WITH THEIR LEADING EDGES AT OR BELOW 27 INCHES ABOVE THE FINISHED FLOOR MAY NOT PROTRUDE ANY AMOUNT.
35. FREESTANDING OBJECTS MOUNTED ON POSTS OR PYLONS MAY OVERHANG 12 INCHES MAXIMUM FROM 27 INCHES TO 80 INCHES ABOVE THE GROUND OR FINISHED FLOOR. PROTRUDING OBJECTS SHALL NOT REDUCE THE CLEAR WIDTH OF AN ACCESSIBLE ROUTE OR MANEUVERING SPACE. ANY OBSTRUCTION OVERHANGING A PEDESTRIAN WAY SHALL BE A MINIMUM OF 80 INCHES ABOVE THE WALKING SURFACE AS MEASURED TO THE BOTTOM OF THE OBSTRUCTION.
36. WALKS, HALLS, CORRIDORS, PASSAGEWAYS, AISLES OR OTHER CIRCULATION SPACES SHALL HAVE 80 INCHES MINIMUM CLEAR HEADROOM. ABRUPT CHANGES IN LEVEL, EXCEPT BETWEEN A WALK OR SIDEWALK AND AN ADJACENT STREET OR DRIVEWAY, EXCEEDING 4 INCHES IN A VERTICAL DIMENSION, SUCH AS AT PLANTERS OR FOUNTAINS LOCATED IN OR ADJACENT TO WALKS, SIDEWALKS, OR OTHER PEDESTRIAN WAYS SHALL BE IDENTIFIED BY CURBS PROJECTING AT LEAST 6 INCHES IN HEIGHT ABOVE THE WALK OR SIDEWALK SURFACE TO WARN THE BLIND OF A POTENTIAL DROP-OFF.
37. WHEN A GUARDRAIL OR HANDRAIL IS PROVIDED, NO CURB IS REQUIRED WHEN A GUIDE RAIL IS PROVIDED CENTERED 3 INCHES PLUS OR MINUS ONE INCH ABOVE THE SURFACE OF THE WALK OR SIDEWALK. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF TITLE 24, 2022 CALIFORNIA BUILDING CODE, CHAPTER 11A AND 11B AND THE DEPARTMENT OF JUSTICE STANDARDS, LATEST EDITION.
38. ALL HANDICAP PARKING STALLS SHALL CONFORM TO THE DETAIL(S) SHOWN ON THE PLANS, AND TITLE 24, 2022 CALIFORNIA BUILDING CODE CHAPTER 11A AND 11B, AND THE DEPARTMENT OF JUSTICE STANDARDS, LATEST EDITION.
39. DRAINAGE SHALL BE CHECKED BY FLOODING OF PAVED AREAS AND CONCRETE GUTTERS. ANY CONCRETE AREAS HOLDING WATER SHALL BE REMOVED AND REPLACED. ANY PAVEMENT AREAS HOLDING WATER SHALL BE REMOVED AND REPLACED OR GROUND TO A UNIFORM DEPTH OF 1" AND CAPPED TO THE SATISFACTION OF THE CITY ENGINEER.
40. LANDSCAPE TREATMENT AND GROUND CONTOURING AS PER THE APPROVED LANDSCAPE PLAN, INCLUDING LIGHTING STANDARDS, SHALL BE SHOWN ON THE GRADING PLAN. LOCATION OF TREES SHALL ALSO BE SHOWN.
41. THE DEVELOPER SHALL SWEEP ALL STREETS IN THE AREA OF THE CONSTRUCTION SITE ON A DAILY BASIS AS REQUIRED BY THE CITY ENGINEER. WASHING DOWN OF ANY STREET SHALL NOT BE PERMITTED UNLESS SPECIFICALLY APPROVED BY THE CITY ENGINEER AFTER ALL DEBRIS AND SILT HAVE BEEN REMOVED. FAILURE TO COMPLY WITH THIS SECTION SHALL BE CAUSE FOR IMMEDIATE SUSPENSION OF ALL WORK ON THE DEVELOPMENT AS WELL AS SUSPENSION OF ALL PERMITS APPROVED TO DATE.
42. ALL WORK SHALL BE IN CONFORMANCE WITH THE LATEST NPDES PERMIT AND CITY OF GARDEN GROVE LOCAL IMPLEMENTATION PLAN (LIP) AND ADOPTED LOW IMPACT DEVELOPMENT (LID) REQUIREMENTS. COPIES OF APPROVED EROSION CONTROL PLANS AND STORM WATER POLLUTION PREVENTION PLAN (SWPPP) WHERE REQUIRED, SHALL BE AT THE CONSTRUCTION SITE AT ALL TIMES AND MADE AVAILABLE UPON REQUEST FOR REVIEW AND IMPLEMENTATION.
43. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL IMPORTED AND EXPORTED SOIL IS FREE OF THE RED IMPORTED FIRE ANT (RIFA).
44. ALL ON-SITE CATCH BASINS SHALL BE STENCILED NOTIFYING THE PUBLIC THAT NO DUMPING IS PERMITTED AND THAT ALL FLOWS DRAIN TO THE OCEAN. THE CONTRACTOR SHALL OBTAIN THE LATEST STENCIL FROM THE CITY STREETS DIVISION 714.741.5278.

REFERENCES

* GREEN BOOK TABLE 203-6.4.3 (A)
* PHASE I PRECISE GRADING PLAN - G-1301
* TRACT MAP 17871 STREET IMPROVEMENT PLAN - A-1857

SHEET INDEX

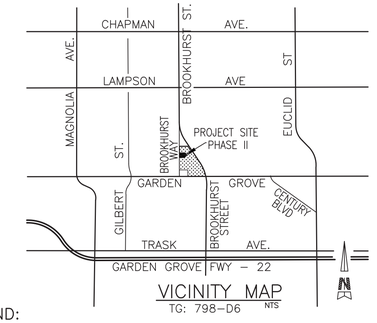
EARTHWORK CALCULATION:

CUT AREA:	1.36 ACRES
FILL AREA:	0.20 ACRES
CUT VOLUME:	23600 C.Y
FILL VOLUME:	900 C.Y.
3" OVER-EXCAVATION	5000 C.Y.
STOCKPILE (ONSITE)	1800 C.Y.
RAW EXPORT VOLUME:	15900 C.Y.

NOTE:
24 HOUR ADVANCE NOTICE IS REQUIRED PRIOR TO THE START OF ANY WORK (714) 741-5887

NOTE:
SECTION 4216/4217 OF THE GOVERNMENT CODE REQUIRES A DIG ALERT IDENTIFICATION NUMBER BE ISSUES BEFORE A PERMIT TO EXCAVATE WILL BE VALID. FOR YOUR DIG ALERT ID NUMBER CALL UNDERGROUND SERVICE ALERT
TOLL FREE "811"
TWO WORKING DAYS BEFORE YOU DIG.

DIGALERT
DIAL BEFORE YOU DIG — TOLL FREE 811 — TWO WORKING DAYS BEFORE YOU DIG
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT



VICINITY MAP
TG: 798-D6 NTS

LEGEND:

HP	HIGH POINT	(120)	EXISTING ELEVATION
TC	TOP OF CURB	120	PROPOSED ELEVATION
FL	FLOW LINE	TBM	TEMPORARY BENCH MARK
FS	FINISHED SURFACE	BM	BENCH MARK
FG	FINISHED GRADE	C	CUT
FF	FINISHED FLOOR	F	FILL
GF	GARAGE FLOOR	N	NATURAL
PAD	PAD	PP	POWER POLE
TW	TOP OF WALL	FH	FIR HYDRANT
TF	TOP OF FOOTING	BW	BACK OF WALK
H	HEIGHT		
L	LENGTH		PROPERTY LINE
PL	PROPERTY LINE		EXISTING CONTOURS
R/W	RIGHT-OF-WAY		PROPOSED CONTOURS
	RETAINING WALL		CUT/FILL DAYLIGHT LINE
	SUBDRAIN PER SOIL ENGINEER'S DIRECTION		CHAIN LINK FENCE
	INDICATES BIO-TRENCH LOCATION		EX. CATV LINE
	SUBDRAIN PIPE		EX. GAS LINE
	SUBDRAIN COLLECTION SYSTEM		EX. STORM DRAIN LINE
			EX. SEWER LINE
			EX. WATER LINE
			PROPOSE STORM DRAIN
			PROPOSE SEWER LINE
			PROPOSE WATER LINE

UTILITY CONTACT LIST

UTILITY	CONTACT	ADDRESS	TEL	CELL	FAX	E-MAIL
AT&T	YVETTL MARTINES-GARAFANO MAP REQUEST	1265 N. VAN BUREN RM 180 ANAHEIM, CA. 92807	714.666.5692		714.630.6617	ym7532@att.com attsubstructureoct@att.com
AT&T (CONSTRUCTION & ENGINEERING)	ROBERT FLEISHER	5959 E. CORONADO ANAHEIM, CA 92807	714.237.6165			rt3259@att.com
CITY OF GARDEN GROVE SANITARY DIVISION	BRENT HAYES	13802 NEWHOPE STREET GARDEN GROVE, CA 92840	714.741.5976	714.290.9318	714.638.9906	brenth@ci.garden-grove.ca.us
CITY OF GARDEN GROVE WATER DIVISION	CARINA DAN	13802 NEWHOPE STREET GARDEN GROVE, CA 92840	714.741.5346	714.448.1456	714.638.9906	carinad@ci.garden-grove.ca.us
CITY OF GARDEN GROVE TRAFFIC DIV.n - FIBER OPTIC CONDUIT	DAI VU	11222 ACACIA PARKWAY GARDEN GROVE, CA 92840	714.741.5189		714.741.5578	daiv@ci.garden-grove.ca.us
EDISON	EDISON MAP REQUEST	MUST COMPLETE FORM				MapRequests@sce.com
EDISON	UTILITY NOTICES GAIL GARDNER	SCE ATTN: DESIGN SUPPORT / UND 9901 GEARY AVE., SANTA FE SPRING, CA 90670	562.903.3167			UND@SCE.COM
EDISON	JOSIAH D. PURDY	1241 S. GRAND AVENUE SANTA ANA, CA 92705	714.796.9886	714.889.8621 PAX:626.221.4482		Josiah.D.Purdy@sce.com
MAPS OF EDISON FACILITIES	KIM GURULE	BUILDING D.P.O. BOX 11982 SANTA ANA, CA 92711-1982	714.796.9932			MapRequests@sce.com
GAS CO	SAUL SAENZ	1919 S. STATE COLLEGE BLVD ANAHEIM, CA 92806-6114	213.231.7273		714.634.7287	ssaenz@semprautilities.com
GAS CO - TRANSMISSION DEPT. MAP REQUEST	ROSALYN SQUIRES	SOUTHERN REGION TRANSMISSION 9400 OAKDALE AVENUE CHATSWORTH, CA 91313	818.701.4546			Rsquires@semprautilities.com socalgrastmsmissionutilityrequest@semprautilities.com
OCSD	QUYNH NGUYEN MAP REQUEST	10844 ELLIS AVENUE FOUNTAIN VALLEY, CA 92708				gnguyen@ocsd.com
REGIONAL PIPELINE MANAGER	GREG KERN		714.634.5005		714.634.3101	
TIME WARNER/AKA SPECTRUM/CHARTER COMMUNICATIONS	ROBERT JIMENEZ	12051 INDUSTRY AVE. GARDEN GROVE, CA 92843	714.591.4905	562.319.7846		robert.jomenze@charter.com
XO COMMUNICATIONS	LEE ARNOLD	1924 DEERE AVE.	949.417.7700		949.417.7762	lee.arnold@xo.com
FRONTIER / VERIZON	PHIL OLIVAS	7352 SLATER HUNTINGTON BEACH, 92647	626.331.0155		949.417.7762	philip.olivas@ftr.com
RED FLEX SYSTEM, INC.	JOE CHASE	5835 A UPLANDER WAY CULVER CITY, CA 90230	805.208.5348	805.208.5348		bchase@redflex.com
CRIMSON PIPELINE LAND DEPT	JENNIFER LONGVILLE	3760 KILROY AIRPORT WAY #300 LONG BEACH, CA 90806	562.285.4195			jlongville@crimsonpl.com
CONFLICT INQUIRY SPECIALIST CA ASSET MGMT CHEVRON PIPR LINE COMPANY	DAVE AERLER PASCUAL ALVAREZ	2600 HOMESTEAD PL LONG BEACH, CA 90806	310.669.4014	951.533.5444		davezerler@chevron.com PDZP@chevron.com
CROWN CASTLE	AHMAD R. SMITH	200 SPECTRUM CENTER DR SUITE 1900 IRVINE, CA 92618	949.936.0045	951.533.5444		ahmad.smith@crowncastle.com

ENGINEER'S NOTE:
THE PROJECT IS WITHIN ZONE "X" PER FEMA FIRM MAP, MAP NUMBER 06059C0139J, DATED DEC. 3, 2009. BUILDING FINISHED FLOOR ELEVATION SHALL BE MINIMUM 1.0' ABOVE THE ADJACENT LOWEST TOP OF CURB. PRIOR TO CONCRETE PLACEMENT THE PAD ELEVATION, CERTIFICATION BY A LICENSED SURVEYOR ACCEPTABLE TO THE BUILDING INSPECTOR MUST BE PROVIDED.

REFERENCE PLANS:

STREET: BW-66-06032-06035; A-995; D-17-70176; S-109-58-70120;
STREET: D-105-58-70124; D-200-097; A-1650-60232; A-1857
STORM DRAIN: C-4-9; D-270-9-60089
SEWER: S-TR-9834
WATER: W-575
GRADING: G-1301

GEOTECHNICAL ENGINEER'S STATEMENT:

THIS PLAN HAS BEEN REVIEWED BY CAL LAND ENGINEERING, INC. AND DEEMED TO BE IN CONFORMANCE WITH ALL THE RECOMMENDATIONS IN OUR REPORT, PROJECT NUMBER 13-082-002GE WITH ADDENDUM REVIEW WAS LIMITED TO THE GEOTECHNICAL ASPECTS OF THE PLAN ONLY.

DATE

CAL LAND ENGINEERING, INC.
576 E. LAMBERT ROAD
BREA, CA 92821
TEL. (714) 671-1050
FAX. (714) 671-1090
E-MAIL: www.callandeng.com

LEGAL DESCRIPTION & ASSESSOR'S PARCEL NUMBERS:

LOTS 1 AND 2, TOGETHER WITH LETTER LOTS A, B, C AND D, AS SHOWN ON THAT CERTAIN MAP ENTITLED TRACT NO. 17871, IN THE CITY OF GARDEN GROVE, COUNTY OF ORANGE, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 941 PAGES 27 TO 30 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

APN#: 089-661-03, 089-661-04 AND PORTION OF 089-661-05, 089-071-05 AND 089-071-24.

NGVD 29 DATUM NOTE:

PROJECT, PLAN AND LISTED BENCHMARK ELEVATION ARE ON NGVD 29 DATUM. TO ACHIEVE NAVD 88 DATUM ADD 2.11 FEET TO THE ELEVATION SHOWN HEREON.

WDID #: TBD

BASIS OF BEARINGS:
THE BEARINGS SHOWN HEREON ARE BASED ON THE CENTERLINE OF BROOKHURST STREET N32°58'38"W PER TRACT NO. 17871, M.B. 941-29-30.

BENCH MARK
CITY B.M. NO. GG-130:
NORTHEAST QUADRANT OF LAMPSON AVE. & BROOKHURST ST., 15' EAST OF B.C.R., 1' NORTH OF CURB FACE, IN SOUTHEAST CORNER OF A 16' X 4' CATCH BASIN.

ELEVATION=85.727' (NAVD 1988)

OWNER:
KAM SANG COMPANY, INC.
411 E. HUNTINGTON DRIVE, #305
ARCADIA, CA 91006
TEL: (626) 446-2988
FAX: (626) 446-3392
E-MAIL: www.kamsangcompany.com

SOIL ENGINEER:
CAL LAND ENGINEERING, INC.
GEOTECHNICAL
576 E. LAMBERT ROAD
BREA, CA 92821
TEL. (714) 671-1050
FAX. (714) 671-1090
EMAIL: www.callandeng.com

PREPARED BY:
FOCUS ENGINEERING, INC.
8 CORPORATE PARK, SUITE 300
IRVINE, CA 92606
TEL: (949) 450-0590
E-MAIL: focusengring@sbcglobal.net

REGISTERED PROFESSIONAL ENGINEER — CHIA LIN LIU — No. 41497 EXP. 12/31/23 — CIVIL — STATE OF CALIFORNIA

REVISIONS

APPV'D	NO.	DATE	DESCRIPTION

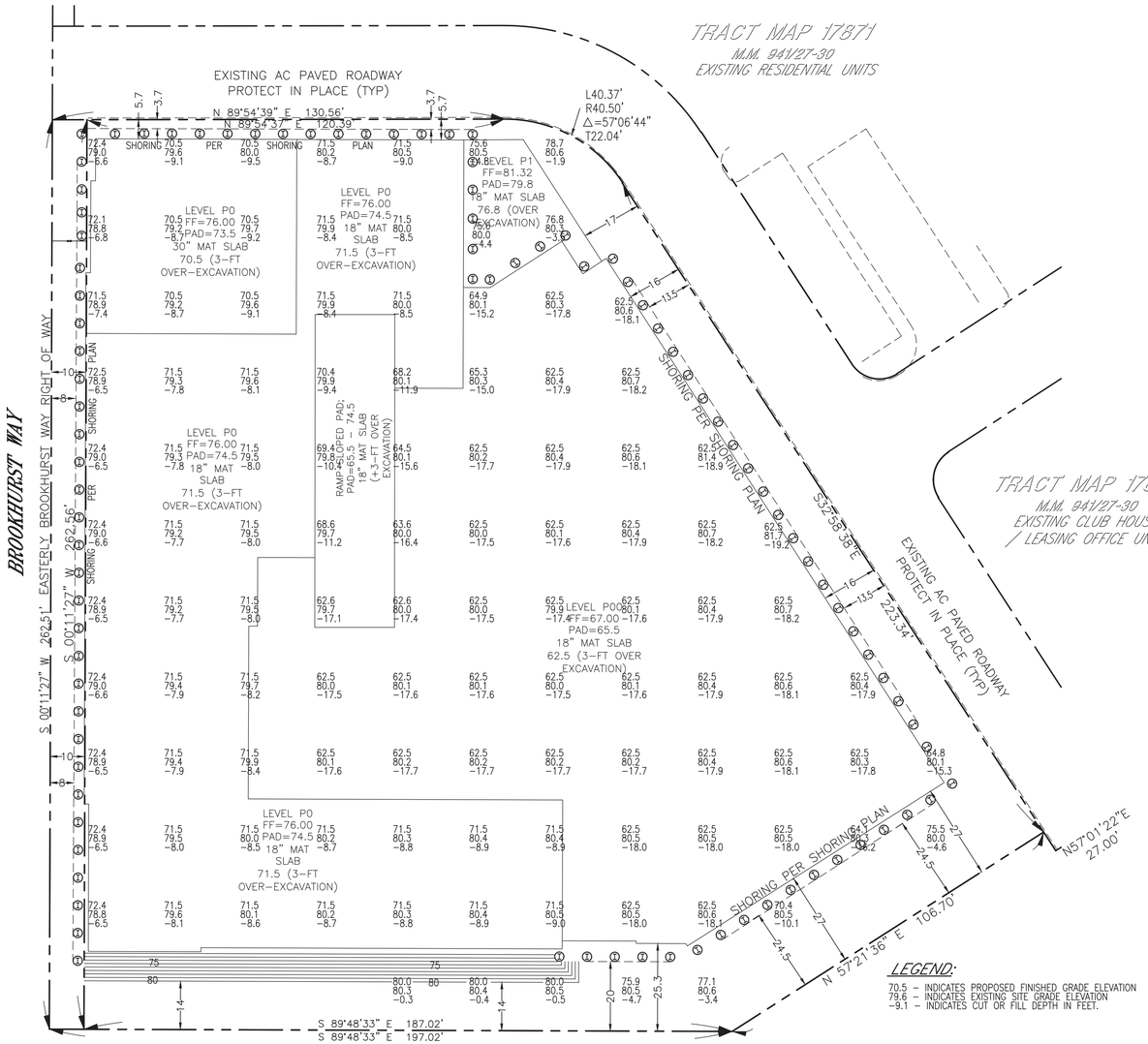
CITY OF GARDEN GROVE

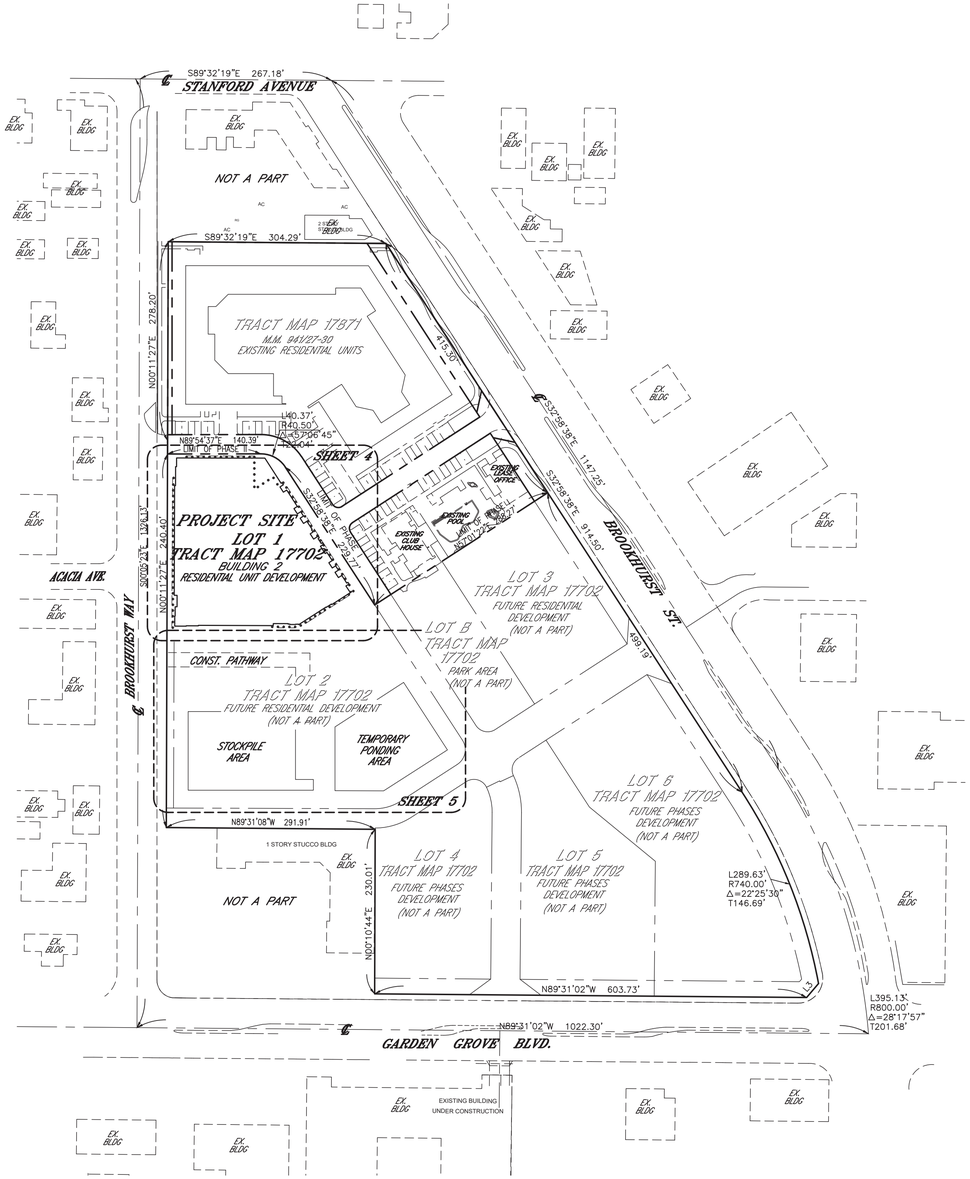
ROUGH GRADING PLAN
TRACT NO. 17702, LOT 1
BROOKHURST TRIANGLE PHASE II
TITLE SHEET

SHEET 1 OF 8

G-1558

PRINT: 2023-06-01





SITE INDEX MAP

SCALE: NTS

LEGEND:
70.5 – INDICATES PROPOSED FINISHED GRADE ELEVATION
79.6 – INDICATES EXISTING SITE GRADE ELEVATION
–9.1 – INDICATES CUT OR FILL DEPTH IN FEET.

ENGINEER'S NOTICE:

1. CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.
2. ALL UNDERGROUND UTILITIES OR STRUCTURES, REPORTED OR FOUND ON PUBLIC RECORDS, ARE INDICATED WITH THEIR APPROXIMATE LOCATION AND EXTENT. THE OWNER, BY ACCEPTING THESE PLANS OR PROCEEDING WITH THE IMPROVEMENTS HEREON, AGREES TO ASSUME LIABILITY AND HOLD THE ENGINEERS HARMLESS FOR ANY DAMAGES RESULTING FROM THE EXISTENCE OF UNDERGROUND UTILITIES OR STRUCTURES NOT REPORTED OR INDICATED ON PUBLIC RECORDS, OR THOSE CONSTRUCTED AT VARIANCE WITH REPORTED OR RECORDED LOCATIONS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROJECT THE UTILITIES OR STRUCTURES SHOWN AND ANY OTHER FOUND AT THE SITE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNERS OF ALL UTILITIES OR STRUCTURES CONCERNED BEFORE STARING WORK.
3. THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR UNAUTHORIZED CHANGES TO OR USED OF THESE PLANS. ALL CHANGES TO THESE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARE OF THESE PLANS.
4. QUANTITIES SHOWN HEREON ARE PROVIDED FOR BONDING PURPOSES ONLY. CONTRACTORS SHALL BE RESPONSIBLE FOR VERIFYING ALL QUANTITIES PRIOR TO BIDDING FOR CONSTRUCTION.

CALIFORNIA COUNCIL OF CIVIL ENGINEERS AND LAND SURVEYORS:

CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK IN THIS PROJECT, EXPECTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL.

NOTE:
SECTION 4216/4217 OF THE GOVERNMENT CODE REQUIRES A DIG ALERT IDENTIFICATION NUMBER BE ISSUES BEFORE A PERMIT TO EXCAVATE WILL BE VALID. FOR YOUR DIG ALERT ID NUMBER CALL UNDERGROUND SERVICE ALERT
TOLL FREE "811"
TWO WORKING DAYS BEFORE YOU DIG.

DIGALERT
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811
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

WDID #: TBD

BASIS OF BEARINGS:
THE BEARINGS SHOWN HEREON ARE BASED ON THE CENTERLINE OF BROOKHURST STREET N32°58'38"W PER TRACT NO. 17871, M.B. 941–29–30.

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E–MAIL: focusengring@sbcglobal.net

REGISTERED PROFESSIONAL ENGINEER
CHIA LIN C.T.O.
No. 41497
EXP. 12/31/23
CIVIL
STATE OF CALIFORNIA

REVISIONS

NO.	DATE	DESCRIPTION

CITY OF GARDEN GROVE

ROUGH GRADING PLAN
TRACT NO. 17702, LOT 1
BROOKHURST TRIANGLE PHASE II

NOTES & INDEX SHEET

G–1558

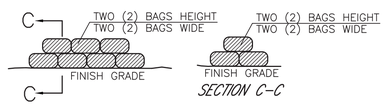
PRINT: 2023–06–01

SHEET 2 OF 8

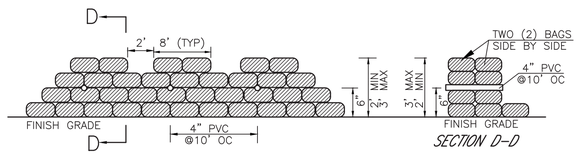
CONSTRUCTION NOTES

EROSION CONTROL CONSTRUCTION NOTES

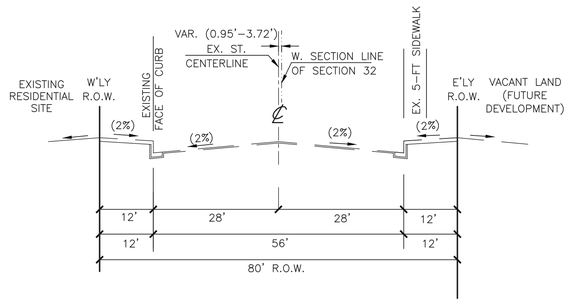
(71)	SE-1: INSTALL SILT FENCE PER CALIFORNIA STORM WATER BMP HANDBOOK, LATEST EDITION.	1660 LF
(72)	SE-5: INSTALL FIBER ROLLS PER CALIFORNIA STORM WATER BMP HANDBOOK, LATEST EDITION.	1660 LF
(73)	TC-1 & TC-3: INSTALL STABILIZED CONSTRUCTION ENTRANCE AND TIRE WASH PER CALIFORNIA STORM WATER BMP HANDBOOK, LATEST EDITION.	1 EA
(74)	WM-1: INSTALL MATERIAL DELIVERY AND STORAGE PER CALIFORNIA STORM WATER BMP HANDBOOK, LATEST EDITION.	1 EA
(75)	WM-8: INSTALL CONCRETE WASTE MANAGEMENT, CONCRETE WASHOUT CONTAINER, WATERPROOF, ABOVE GROUND METAL CONTAINER, CONSOLIDATED FABRICATORS OR EQUIVALENT AS SHOWN ON SHEET 8 AND PER CALIFORNIA STORM WATER BMP HANDBOOK, LATEST EDITION	1 EA
(76)	SE-6: INSTALL GRAVEL BAG BERM PER CALIFORNIA STORM WATER BMP HANDBOOK, LATEST EDITION.	1350 LF
(77)	EC-5: APPLY REINFORCED PLASTIC COVER OR SOIL BINDERS OR OTHER EROSION CONTROL MEASUREMENT ON ENGINEERING SLOPE PER CALIFORNIA STORM WATER BMP HANDBOOK, LATEST EDITION.	1 LS
(78)	SE-3: CONSTRUCT SEDIMENT TRAP (1-FT IN DEPTH) PER CALIFORNIA STORM WATER BMP HANDBOOK, LATEST EDITION.	1 EA
(79)	SE-4: INSTALL CHECK DAMS PER DETAIL ON SHEET 3 AND CALIFORNIA STORM WATER BMP HANDBOOK, LATEST EDITION.	1 EA
(80)	SE-7: PERFORM STREET SWEEPING AND VACUUMING PER CALIFORNIA STORM WATER BMP HANDBOOK, LATEST EDITION.	1 LS
(81)	WM-9: INSTALL TEMPORARY SANITARY / SEPTIC FACILITIES, PORTABLE TOILETS, PER CALIFORNIA STORM WATER BMP HANDBOOK, LATEST EDITION.	1 LS



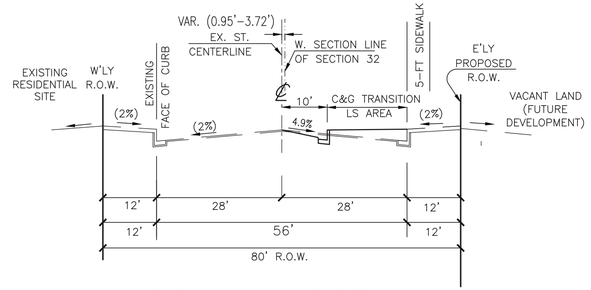
TYPICAL SECTION – GRAVEL BAG
NTS



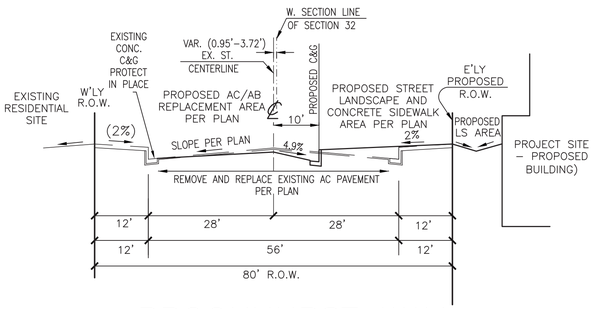
TYPICAL SECTION – CHECK DAM GRAVEL BAG
(TO BE USED AT FINAL STORM DRAIN RELEASE LOCATION) NTS



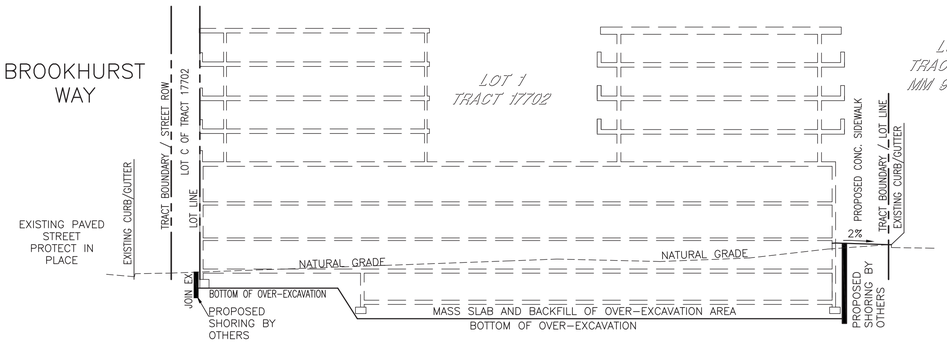
BROOKHURST WAY
(STA. 13+00.00 – 14+11.38) NTS



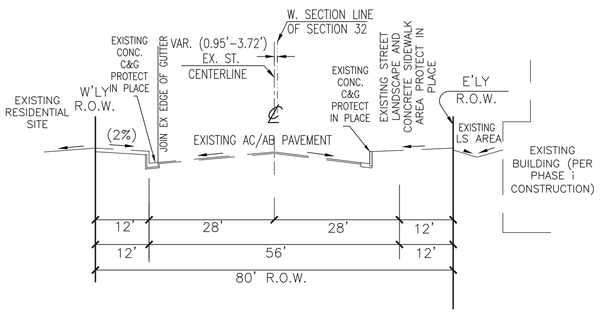
BROOKHURST WAY
(STA. 14+11.38 – 15+11.44) NTS



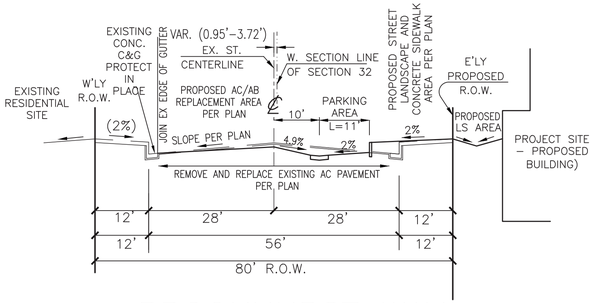
BROOKHURST WAY
(STA. 15+11.44 – 15+99.94) NTS
(STA. 17+43.50 – 17+72.27)



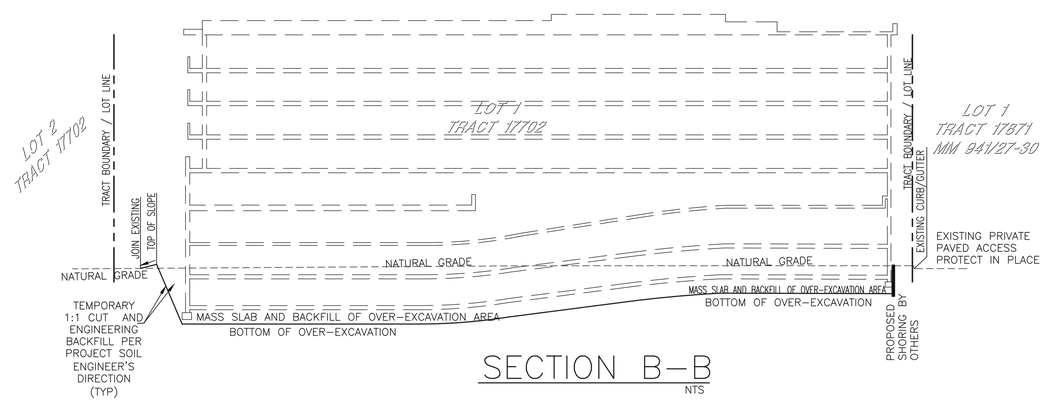
SECTION A–A
NTS



BROOKHURST WAY
(STA. 18+55 – 19+50) NTS



BROOKHURST WAY
(STA. 15+99.94 – 17+43.50) NTS



SECTION B–B
NTS

NOTE:
SECTION 4216/4217 OF THE GOVERNMENT CODE REQUIRES A DIG ALERT IDENTIFICATION NUMBER BE ISSUES BEFORE A PERMIT TO EXCAVATE WILL BE VALID. FOR YOUR DIG ALERT ID NUMBER CALL UNDERGROUND SERVICE ALERT
TOLL FREE "811"
TWO WORKING DAYS BEFORE YOU DIG.

DIGALERT
DIAL BEFORE YOU DIG
TWO WORKING DAYS BEFORE YOU DIG
TOLL FREE 811
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

WDID #: TBD

BASIS OF BEARINGS:
THE BEARINGS SHOWN HEREON ARE BASED ON THE CENTERLINE OF BROOKHURST STREET N32°58'38"W PER TRACT NO. 17871, M.B. 941-29-30.

BENCH MARK
CITY B.M. NO. GG-130:
NORTHEAST QUADRANT OF LAMPSON AVE. & BROOKHURST ST., 15' EAST OF B.C.R., 1' NORTH OF CURB FACE, IN SOUTHEAST CORNER OF A 16' X 4' CATCH BASIN.

ELEVATION=85.727' (NAVD 1988)

OWNER:
KAM SANG COMPANY, INC.
411 E. HUNTINGTON DRIVE, #305
ARCADIA, CA 91006
TEL: (626) 446-2988
FAX: (626) 446-3392
E-MAIL: www.kamsangcompany.com

SOIL ENGINEER:
CAL LAND ENGINEERING, INC.
GEOTECHNICAL
576 E. LAMBERT ROAD
BREA, CA 92821
TEL. (714) 671-1050
FAX. (714) 671-1090
EMAIL: www.callandeng.com

PREPARED BY:
FOCUS ENGINEERING, INC.
8 CORPORATE PARK, SUITE 300
IRVINE, CA 92606
TEL: (949) 450-0590
E-MAIL: focusengring@sbcglobal.net

REGISTERED PROFESSIONAL ENGINEER
GUIA LIN LIU
No. 41497
EXP. 12/31/23
CIVIL
STATE OF CALIFORNIA

REVISIONS

NO.	DATE	DESCRIPTION

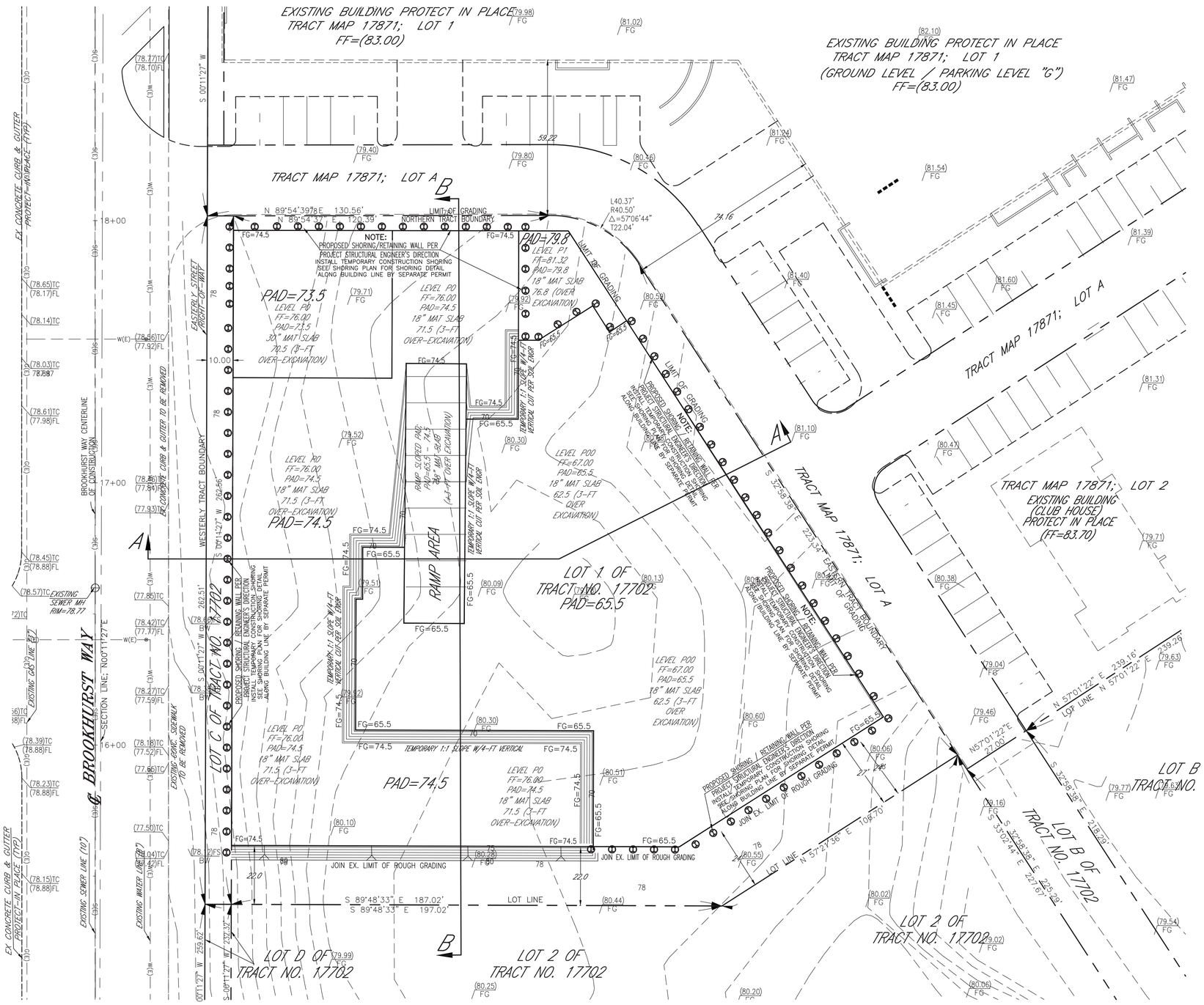
CITY OF GARDEN GROVE

ROUGH GRADING PLAN
TRACT NO. 17702, LOT 1
BROOKHURST TRIANGLE PHASE II
QUANTITIES, SECTIONS & DETAILS

G-1558

PRINT: 2023-06-01

SHEET 3 OF 8



SCALE: 1"=20'
10 0 10 20 30

DIGALERT
DIAL BEFORE YOU DIG
TOLL FREE 811
TWO WORKING DAYS BEFORE YOU DIG
811
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

LEGEND:

HP	HIGH POINT
TC	TOP OF CURB
FL	FLOW LINE
FS	FINISHED SURFACE
FG	FINISHED GRADE
FF	FINISHED FLOOR
GF	GARAGE FLOOR
PAD	PAD
TW	TOP OF WALL
TF	TOP OF FOOTING
H	HEIGHT
L	LENGTH
PL	PROPERTY LINE
R/W	RIGHT-OF-WAY
	SUBDRAIN PIPE
	SUBDRAIN COLLECTION SYSTEM
SD	PROPOSE STORM DRAIN
S	PROPOSE SEWER LINE
W	PROPOSE WATER LINE
(120)	EXISTING ELEVATION
120	PROPOSED ELEVATION
TBM	TEMPORARY BENCH MARK
BM	BENCH MARK
C	CUT
F	FILL
N	NATURAL
PP	POWER POLE
FH	FIR HYDRANT
BW	BACK OF WALK
	PROPERTY LINE
	EXISTING CONTOURS
	PROPOSED CONTOURS
	CUT/FILL DAYLIGHT LINE
	CHAIN LINK FENCE
CATV(E)	EX. CATV LINE
G(E)	EX. GAS LINE
SD(E)	EX. STORM DRAIN LINE
S(E)	EX. SEWER LINE
W(E)	EX. WATER LINE

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REGISTERED PROFESSIONAL ENGINEER
CHIA LIN LIU
No. 41497
EXP. 12/31/23
CIVIL
STATE OF CALIFORNIA

REVISIONS

NO.	DATE	DESCRIPTION

CITY OF GARDEN GROVE

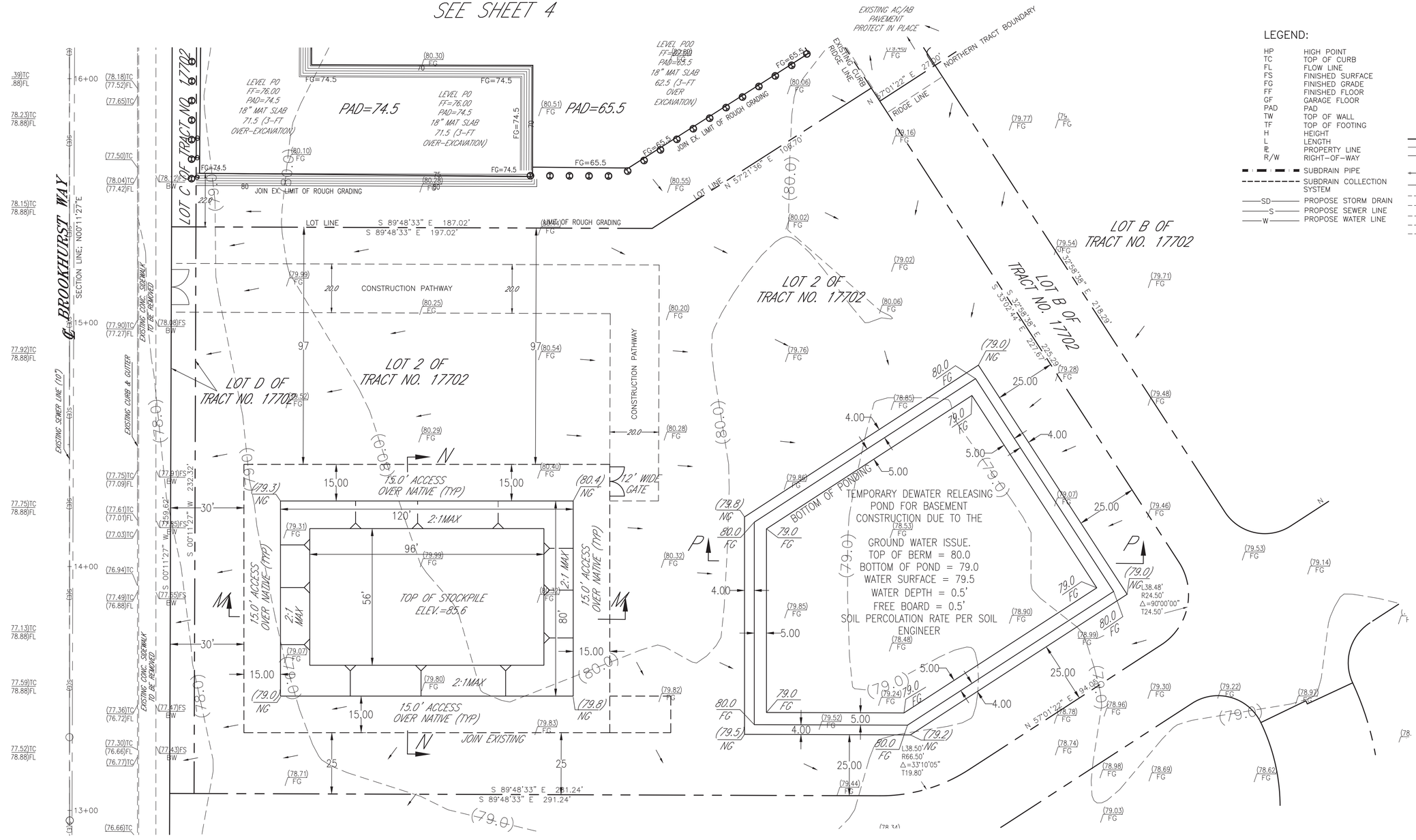
ROUGH GRADING PLAN
TRACT NO. 17702, LOT 1
BROOKHURST TRIANGLE PHASE II
ROUGH GRADING PLAN - BUILDING #2

G-1558

PRINT: 2023-06-01

SHEET 4 OF 8

SEE SHEET 4



LEGEND:

HP	HIGH POINT
TC	TOP OF CURB
FL	FLOW LINE
FS	FINISHED SURFACE
FG	FINISHED GRADE
FF	FINISHED FLOOR
GF	GARAGE FLOOR
PAD	PAD
TW	TOP OF WALL
TF	TOP OF FOOTING
H	HEIGHT
L	LENGTH
℄	PROPERTY LINE
R/W	RIGHT-OF-WAY
	SUBDRAIN PIPE
	SUBDRAIN COLLECTION SYSTEM
SD	PROPOSE STORM DRAIN
S	PROPOSE SEWER LINE
W	PROPOSE WATER LINE

(120)	EXISTING ELEVATION
120	PROPOSED ELEVATION
TBM	TEMPORARY BENCH MARK
BM	BENCH MARK
C	CUT
F	FILL
N	NATURAL
PP	POWER POLE
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	CUT/FILL DAYLIGHT LINE
	CHAIN LINK FENCE
CATV(E)	EX. CATV LINE
G(E)	EX. GAS LINE
SD(E)	EX. STORM DRAIN LINE
S(E)	EX. SEWER LINE
W(E)	EX. WATER LINE

NOTE:
SECTIONS M-M, M-M & P-P
SEE SHEET 6 FOR DETAIL.

DIGALERT
DIAL BEFORE YOU DIG
TOLL FREE 811
TWO WORKING DAYS BEFORE YOU DIG
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

SCALE: 1"=20'
10 0 10 20 30

WDID #: TBD

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REGISTERED PROFESSIONAL ENGINEER CHIA LIN CHO No. 41497 EXP. 12/31/23 CIVIL STATE OF CALIFORNIA

REVISIONS

NO.	DATE	DESCRIPTION

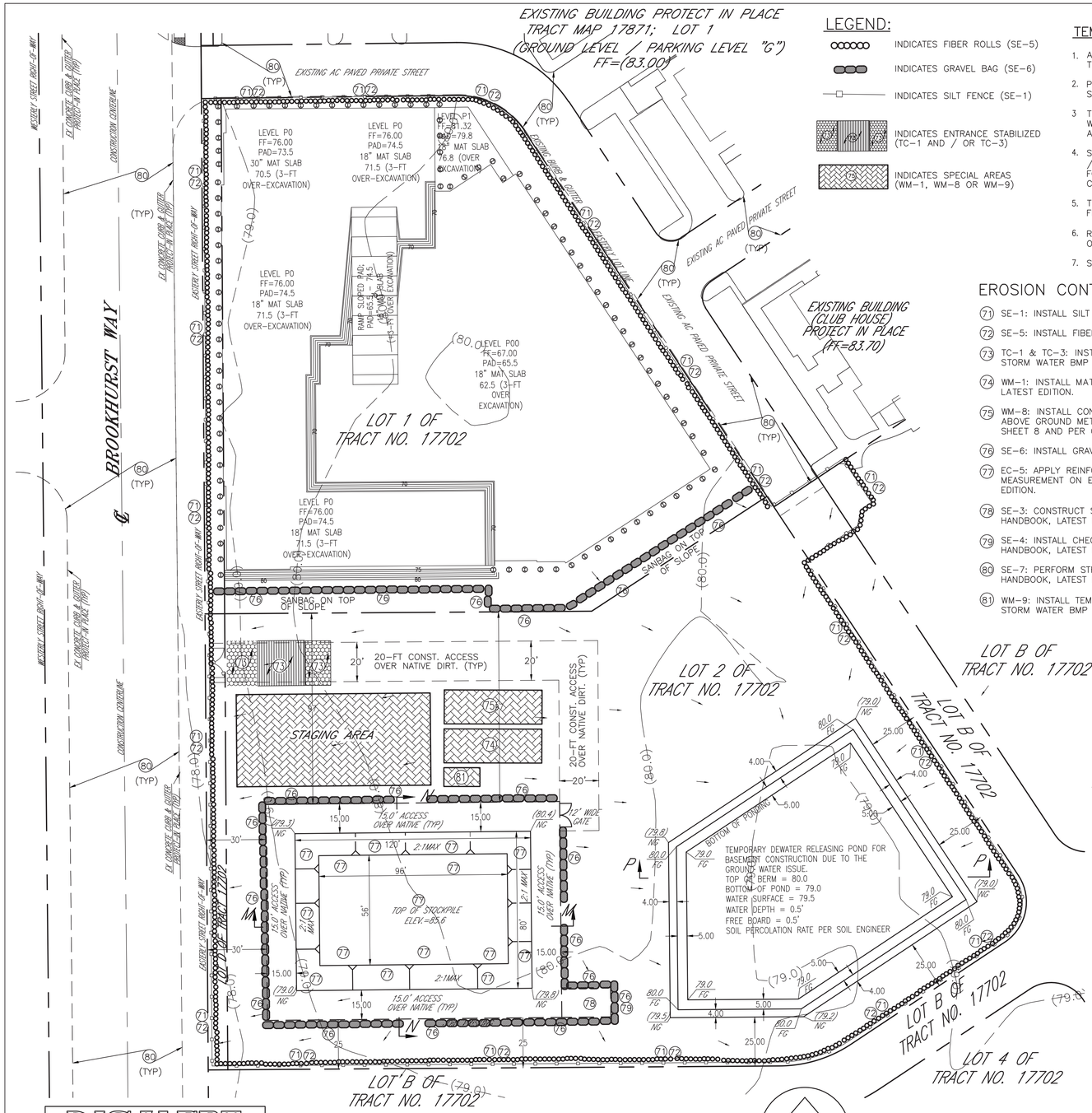
CITY OF GARDEN GROVE

ROUGH GRADING PLAN
TRACT NO. 17702, LOT 1
BROOKHURST TRIANGLE PHASE II
ROUGH GRADING PLAN - BUILDING #2

G-1558

PRINT: 2023-06-01

SHEET 5 OF 8



LEGEND:

- INDICATES FIBER ROLLS (SE-5)
- INDICATES GRAVEL BAG (SE-6)
- INDICATES SILT FENCE (SE-1)
- INDICATES ENTRANCE STABILIZED (TC-1 AND / OR TC-3)
- INDICATES SPECIAL AREAS (WM-1, WM-8 OR WM-9)

TEMPORARY STOCKPILE NOTES:

1. ALL TEMPORARY / ACTIVE STOCKPILE SHOULD BE COVERED AND PROTECTED WITH A TEMPORARY LINEAR SEDIMENT BARRIER PRIOR TO THE ONSET OF PRECIPITATION.
2. PLASTIC TRAPS WITH NYLON REINFORCEMENT SHALL BE USED WHERE PLASTIC SHEETING IS NEED PRIOR TO THE ONSET OF PRECIPITATION.
3. THE DOWNSTREAM PERIMETER OF AN ACTIVE STOCKPILE SHOULD BE PROTECTED WITH A LINEAR SEDIMENT BARRIER OR BERM AND RUNOFF SHOULD BE DIVERTED AROUND OR AWAY FROM THE STOCKPILE ON THE UPSTREAM PERIMETER.
4. STOCKPILE MUST BE INSPECTED IN ACCORDANCE WITH CITY OF GARDEN GROVE AND / OR GENERAL PERMIT REQUIREMENTS. BMP BE INSPECTED WEEKLY, PRIOR TO FORECASTED RAIN EVENTS, DAILY DURING EXTENDED RAIN EVENTS AND AFTER THE CONCLUSION OF RAIN EVENTS.
5. THE STOCKPILE PLASTIC SHEETING MAY BE NECESSARY TO INSPECT MORE FREQUENTLY DURING HIGH WINDS OR EXTREME HEAT CONDITIONS.
6. REPAIR AND / OR REPLACE PERIMETER CONTROLS AND COVERS AS NEEDED IN ORDER TO KEEP IT FUNCTIONING PROPERLY.
7. SEDIMENT SHALL BE REMOVED.

EROSION CONTROL CONSTRUCTION NOTES

(71) SE-1: INSTALL SILT FENCE PER CALIFORNIA STORM WATER BMP HANDBOOK, LATEST EDITION.

(72) SE-5: INSTALL FIBER ROLLS PER CALIFORNIA STORM WATER BMP HANDBOOK, LATEST EDITION.

(73) TC-1 & TC-3: INSTALL STABILIZED CONSTRUCTION ENTRANCE AND TIRE WASH PER CALIFORNIA STORM WATER BMP HANDBOOK, LATEST EDITION.

(74) WM-1: INSTALL MATERIAL DELIVERY AND STORAGE PER CALIFORNIA STORM WATER BMP HANDBOOK, LATEST EDITION.

(75) WM-8: INSTALL CONCRETE WASTE MANAGEMENT, CONCRETE WASHOUT CONTAINER, WATERPROOF, ABOVE GROUND METAL CONTAINER, CONSOLIDATED FABRICATORS OR EQUIVALENT AS SHOWN ON SHEET 8 AND PER CALIFORNIA STORM WATER BMP HANDBOOK, LATEST EDITION

(76) SE-6: INSTALL GRAVEL BAG BERM PER CALIFORNIA STORM WATER BMP HANDBOOK, LATEST EDITION.

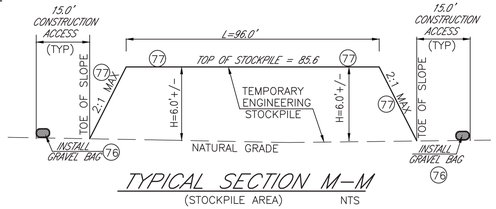
(77) EC-5: APPLY REINFORCED PLASTIC COVER OR SOIL BINDERS OR OTHER EROSION CONTROL MEASUREMENT ON ENGINEERING SLOPE PER CALIFORNIA STORM WATER BMP HANDBOOK, LATEST EDITION.

(78) SE-3: CONSTRUCT SEDIMENT TRAP (1-FT IN DEPTH) PER CALIFORNIA STORM WATER BMP HANDBOOK, LATEST EDITION.

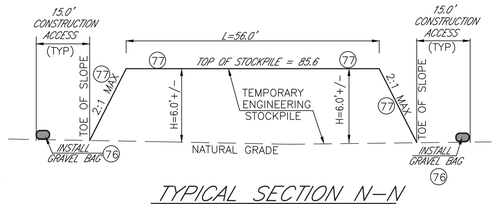
(79) SE-4: INSTALL CHECK DAMS PER DETAIL ON SHEET 3 AND CALIFORNIA STORM WATER BMP HANDBOOK, LATEST EDITION.

(80) SE-7: PERFORM STREET SWEEPING AND VACUUMING PER CALIFORNIA STORM WATER BMP HANDBOOK, LATEST EDITION.

(81) WM-9: INSTALL TEMPORARY SANITARY / SEPTIC FACILITIES, PORTABLE TOILETS, PER CALIFORNIA STORM WATER BMP HANDBOOK, LATEST EDITION.



TYPICAL SECTION M-M
(STOCKPILE AREA) NTS

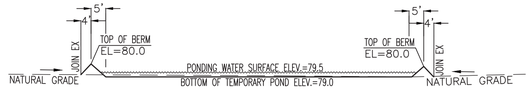


TYPICAL SECTION N-N
(STOCKPILE AREA) NTS

NOTE:

INSTALL REINFORCED PLASTIC COVER OR EQUAL FOR WIND EROSION CONTROL AND GRAVEL BAG AROUND THE PERIMETER OF STOCKPILES AREA.

DURING RAINY SEASON, COVERED OR PROTECTED THE SOIL STOCKPILES WITH SOIL STABILIZATION MEASURES AND A TEMPORARY PERIMETER SEDIMENT BARRIER AT ALL TIME.



TYPICAL SECTION P-P
(TEMPORARY DEWATER RELEASING POND AREA) NTS

EROSION CONTROL PLANS GENERAL NOTES

1. EROSION CONTROL IS REQUIRED FOR GRADING OPERATIONS DURING THE RAINY SEASON FROM OCTOBER 15TH TO APRIL 15TH APPROVED PLANS ARE REQUIRED FOR ALL ROUGH GRADING.
2. IN CASE OF EMERGENCY, CALL:

   JOHN L. HICKS — RESPONSIBLE PERSON
   KAM SANG COMPANY — FIRM
   AT (626) 226-2988X17 — 24 HOURS PHONE NUMBER
3. THE DESIGN CIVIL ENGINEER WILL SUPERVISE EROSION CONTROL WORK AND ENSURE THAT WORK IS IN ACCORDANCE WITH THE APPROVED PLAN (IF REQUIRED).
4. EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON. NECESSARY MATERIALS SHALL BE AVAILABLE ON SITE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE REPAIR CONSTRUCTION OF TEMPORARY DEVICES WHEN RAIN IS IMMINENT.
5. DEVICE SHALL NOT BE MOVED OR MODIFIED WITHOUT THE APPROVAL OF THE CITY ENGINEER. REVISIONS SHALL BE PROMPTLY SUBMITTED TO THE CITY ENGINEER FOR APPROVAL.
6. ALL REMOVABLE PROTECTIVE DEVICES SHOWN SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN THE 5-DAY RAIN PROBABILITY FORECAST EXCEEDS 40%.
7. AFTER A RAINSTORM, ALL SILT AND DEBRIS SHALL BE REMOVED FROM GRAVEL BAGS, SILT FENCES, AND STABILIZING ENTRANCES AREA, ETC.
8. GRADED AREAS AROUND THE TRACT PERIMETER MUST DRAIN AWAY FROM THE FACE OF SLOPE AT THE CONCLUSION OF EACH WORKING DAY.
9. THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT PUBLIC TRESPASS ONTO AREAS WHERE IMPOUNDED WATER CREATES A HAZARDOUS CONDITION.
10. DESILTING BASINS ARE TO BE CONSTRUCTED AS GRADING OF INDIVIDUAL GRADING AREAS ARE COMPLETE PER ROUGH GRADING PLANS.
11. THE CITY ENGINEER RESERVES THE RIGHT TO MAKE CHANGES OR MODIFICATIONS TO THIS PLAN AS DEEMED NECESSARY.
12. INFORMATION ON TIES PLAN IS FOR EROSION CONTROL ONLY. ALL OTHER INFORMATION IS SUBJECT TO CHANGE.
13. TEMPORARY EROSION PROTECTION IS REQUIRED FOR MANUFACTURED SLOPES PRIOR TO PERMANENT PLANTING.
14. AREAS SHALL BE MAINTAINED IN SUCH A STATE THAT FIRE ACCESS SHALL BE MAINTAINED AT ALL TIMES (INCLUDING ACCESS TO NEIGHBORING PROPERTIES).
15. NO OBSTRUCTION OR DISTURBANCE OF NATURAL DRAINAGE COURSES OR EXISTING STORM DRAIN INLETS SHALL OCCUR DURING THE RAINY SEASON, UNLESS ADEQUATE TEMPORARY/PERMANENT DRAINAGE FACILITIES HAVE BEEN APPROVED AND INSTALLED TO CARRY SURFACE WATER TO THE NEAREST PRACTICAL STREET, STORM DRAIN OR NATURAL WATER COURSE.
16. THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER THAT STORM RUNOFF WILL BE CONTAINED WITHIN THE PROJECT OR CHANNELED INTO THE STORM DRAIN SYSTEM WHICH SERVES THE RUNOFF AREA. STORM RUNOFF FROM ONE AREA SHALL NOT BE ALLOWED TO DIVERT TO ANOTHER RUNOFF AREA.
17. CONFORMANCE WITH THE REQUIREMENTS OF THESE PLANS SHALL IN NO WAY RELIEVE THE CONTRACTOR FROM HIS RESPONSIBILITIES TO TIES SITE AND ADJACENT PROPERTIES. TEMPORARY EROSION CONTROL SHALL CONSIST OF, BUT NOT BE LIMITED TO, CONSTRUCTING SUCH FACILITIES AND TAKING SUCH MEASURES AS ARE NECESSARY TO PREVENT, CONTROL AND ABATE WATER, MUD AND EROSION DAMAGE TO PUBLIC AND PRIVATE PROPERTY AS A RESULT OF THE CONSTRUCTION OF THIS PROJECT.
18. SLOPES CONSTRUCTED PRIOR TO OCTOBER I SHALL BE TREATED FOR EROSION CONTROL PRIOR TO OCTOBER 15. SLOPES CONSTRUCTED AFTER OCTOBER I SHALL BE TREATED FOR EROSION CONTROL AS THE CONSTRUCTION OF SLOPE PROGRESSES IN INCREMENTS OF 25 FEET OR LESS MEASURED VERTICALLY.
19. FILL AREAS WHILE BEING BROUGHT UP TO GRADE AND DURING PERIODS OF COMPLETION PRIOR TO FINAL GRADE, SHALL BE PROTECTED BY VARIOUS MEASURES TO ELIMINATE EROSION AND THE SILTATION OF DOWNSTREAM FACILITIES AND ADJACENT AREAS. THESE MEASURES MAY INCLUDE, BUT SHALL NOT BE LIMITED TO: TEMPORARY DOWN DRAINS EITHER IN THE FORM OF PIPES OR PAVED DITCHES WITH PROTECTED OUTFALL AREAS; GRADED BERMS AROUND AREAS TO ELIMINATE EROSION OF FILL SLOPES BY SURFACE RUNOFF; CONFINED PONDING AREAS TO DESILT RUNOFF; TEMPORARY CHECK DAMS IN TOE OF SLOPE DITCHES TO DESILT RUNOFF; PROTECTION SUCH AS GRAVEL BAGS AROUND INLETS WHICH HAVE NOT BEEN BROUGHT UP TO GRADE; AND EARTH BERMS AND APPROPRIATE GRADING TO DIRECT DRAINAGE AWAY FROM THE EDGE OF THE TOP OF SLOPES SHALL BE CONSTRUCTED AND MAINTAINED ON THOSE FILL AREAS WHERE EARTH-WORK OPERATIONS ARE NOT IN PROGRESS.
20. TOP OF CUT BROW DITCHES, WHERE REQUIRED ON THE PLANS, SHALL BE CONSTRUCTED PRIOR TO EXCEEDING 12 FEET OF CUT MEASURED VERTICALLY.
21. CLEARING AND GRUBBING SHOULD BE LIMITED TO AREAS THAT WILL RECEIVE IMMEDIATE GRADING. EROSION CONTROL MEASURES WILL BE REQUIRED TO PROTECT AREAS THAT HAVE BEEN CLEARED AND GRUBBED PRIOR TO GRADING OPERATION, AND THAT ARE SUBJECT TO RUNOFF DURING TEE PERIOD FROM THE BEGINNING OF THE RAINY SEASON. THESE MEASURES MAY INCLUDE BUT SHALL NOT BE LIMITED TO: GRADED DITCHES; BRUSH BARRIERS AND SILT FENCES. CARE SHALL BE EXERCISED TO PRESERVE VEGETATION BEYOND THE LIMITS OF GRADING.
22. CITY APPROVAL OF PLANS DOES NOT RELIEVE THE DEVELOPER FROM RESPONSIBILITY FOR THE CORRECTION OF ERRORS AND OMISSIONS DISCOVERED DURING CONSTRUCTION. UPON REQUEST, THE REQUIRED PLAN REVISIONS SHALL BE PROMPTLY SUBMITTED TO THE CITY ENGINEER FOR APPROVAL.

DIGALERT
DIAL BEFORE YOU DIG — TWO WORKING DAYS BEFORE YOU DIG
TOLL FREE 811
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

BASIS OF BEARINGS:
THE BEARINGS SHOWN HEREON ARE BASED ON THE CENTERLINE OF BROOKHURST STREET N32°58'38"W PER TRACT NO. 17871, M.B. 941-29-30.

BENCH MARK
CITY B.M. NO. GG-130:
NORTHEAST QUADRANT OF LAMPSON AVE. & BROOKHURST ST., 15' EAST OF B.C.R., 1' NORTH OF CURB FACE, IN SOUTHEAST CORNER OF A 16' X 4' CATCH BASIN.

ELEVATION=85.727' (NAVD 1988)

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REGISTERED PROFESSIONAL ENGINEER — CHIA LIN LIU — No. 41497 EXP. 12/31/23 — CIVIL — STATE OF CALIFORNIA

REVISIONS

NO.	DATE	DESCRIPTION

WDID #: TBD

CITY OF GARDEN GROVE

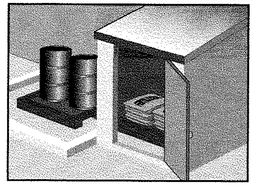
ROUGH GRADING PLAN
TRACT NO. 17702, LOT 1
BROOKHURST TRIANGLE PHASE II
EROSION CONTROL PLAN

G-1558

PRINT: 2023-06-01

SHEET 6 OF 8

Material Delivery and Storage WM-1



Categories

EC	Erosion Control
SE	Sediment Control
TC	Tracking Control
WE	Wind Erosion Control
NS	Non-Stormwater Management Control
WM	Waste Management and Materials Pollution Control ☑

Legend:
☑ Primary Category
☑ Secondary Category

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

Description and Purpose

Prevent, reduce, or eliminate the discharge of pollutants from material delivery and storage to the stormwater system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in watertight containers and/or a completely enclosed designated area, installing secondary containment, conducting regular inspections, and training employees and subcontractors.

This best management practice covers only material delivery and storage. For other information on materials, see WM-2, Material Use, or WM-4, Spill Prevention and Control. For information on wastes, see the waste management BMPs in this section.

Suitable Applications

These procedures are suitable for use at all construction sites with delivery and storage of the following materials:

- Soil stabilizers and binders
- Pesticides and herbicides
- Fertilizers
- Detergents
- Plaster
- Petroleum products such as fuel, oil, and grease

Material Delivery and Storage WM-1

- Asphalt and concrete components
- Hazardous chemicals such as acids, lime, glues, adhesives, paints, solvents, and curing compounds
- Concrete compounds
- Other materials that may be detrimental if released to the environment

Limitations

- Space limitation may preclude indoor storage.
- Storage sheds often must meet building and fire code requirements.

Implementation

The following steps should be taken to minimize risk:

- Chemicals must be stored in water tight containers with appropriate secondary containment or in a storage shed.
- When a material storage area is located on bare soil, the area should be lined and bermed.
- Use containment pallets or other practical and available solutions, such as storing materials within newly constructed buildings or garages, to meet material storage requirements.
- Stack erodible landscape material on pallets and cover when not in use.
- Contain all fertilizers and other landscape materials when not in use.
- Temporary storage areas should be located away from vehicular traffic.
- Material Safety Data Sheets (MSDS) should be available on-site for all materials stored that have the potential to effect water quality.
- Construction site areas should be designated for material delivery and storage.
- Material delivery and storage areas should be located away from waterways, if possible.
  - Avoid transport near drainage paths or waterways.
  - Surround with earth berms or other appropriate containment BMP. See EC-9, Earth Dikes and Drainage Swales.
  - Place in an area that will be paved.
- Storage of reactive, ignitable, or flammable liquids must comply with the fire codes of your area. Contact the local Fire Marshal to review site materials, quantities, and proposed storage area to determine specific requirements. See the Flammable and Combustible Liquid Code, NFPA30.
- An up to date inventory of materials delivered and stored onsite should be kept.

Material Delivery and Storage WM-1

- Hazardous materials storage onsite should be minimized.
- Hazardous materials should be handled as infrequently as possible.
- Keep ample spill cleanup supplies appropriate for the materials being stored. Ensure that cleanup supplies are in a conspicuous, labeled area.
- Employees and subcontractors should be trained on the proper material delivery and storage practices.
- Employees trained in emergency spill cleanup procedures must be present when dangerous materials or liquid chemicals are unloaded.
- If significant residual materials remain on the ground after construction is complete, properly remove and dispose of materials and any contaminated soil. See WM-7, Contaminated Soil Management. If the area is to be paved, pave as soon as materials are removed to stabilize the soil.

Material Storage Areas and Practices

- Liquids, petroleum products, and substances listed in 40 CFR Parts 110, 117, or 302 should be stored in approved containers and drums and should not be overfilled. Containers and drums should be placed in temporary containment facilities for storage.
- A temporary containment facility should provide for a spill containment volume able to contain precipitation from a 25 year storm event, plus the greater of 10% of the aggregate volume of all containers or 100% of the capacity of the largest container within its boundary, whichever is greater.
- A temporary containment facility should be impervious to the materials stored therein for a minimum contact time of 72 hours.
- A temporary containment facility should be maintained free of accumulated rainwater and spills. In the event of spills or leaks, accumulated rainwater and spills should be collected and placed into drums. These liquids should be handled as a hazardous waste unless testing determines them to be non-hazardous. All collected liquids or non-hazardous liquids should be sent to an approved disposal site.
- Sufficient separation should be provided between stored containers to allow for spill cleanup and emergency response access.
- Incompatible materials, such as chlorine and ammonia, should not be stored in the same temporary containment facility.
- Materials should be covered prior to, and during rain events.
- Materials should be stored in their original containers and the original product labels should be maintained in place in a legible condition. Damaged or otherwise illegible labels should be replaced immediately.

Material Delivery and Storage WM-1

- Bagged and boxed materials should be stored on pallets and should not be allowed to accumulate on the ground. To provide protection from wind and rain throughout the rainy season, bagged and boxed materials should be covered during non-working days and prior to and during rain events.
- Stockpiles should be protected in accordance with WM-3, Stockpile Management.
- Materials should be stored indoors within existing structures or completely enclosed storage sheds when available.
- Proper storage instructions should be posted at all times in an open and conspicuous location.
- An ample supply of appropriate spill clean up material should be kept near storage areas.
- Also see WM-6, Hazardous Waste Management, for storing of hazardous wastes.

Material Delivery Practices

- Keep an accurate, up-to-date inventory of material delivered and stored onsite.
- Arrange for employees trained in emergency spill cleanup procedures to be present when dangerous materials or liquid chemicals are unloaded.

Spill Cleanup

- Contain and clean up any spill immediately.
- Properly remove and dispose of any hazardous materials or contaminated soil if significant residual materials remain on the ground after construction is complete. See WM-7, Contaminated Soil Management.
- See WM-4, Spill Prevention and Control, for spills of chemicals and/or hazardous materials.
- If spills or leaks of materials occur that are not contained and could discharge to surface waters, non-visible sampling of site discharge may be required. Refer to the General Permit or to your project specific Construction Site Monitoring Plan to determine if and where sampling is required.

Cost

- The largest cost of implementation may be in the construction of a materials storage area that is covered and provides secondary containment.

Inspection and Maintenance

- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Keep storage areas clean and well organized, including a current list of all materials onsite.
- Inspect labels on containers for legibility and accuracy.

Material Delivery and Storage WM-1

- Repair or replace perimeter controls, containment structures, covers, and liners as needed to maintain proper function.

References

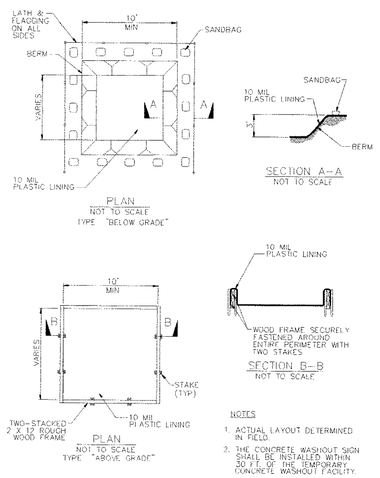
Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance, Working Group Working Paper; USEPA, April 1992.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

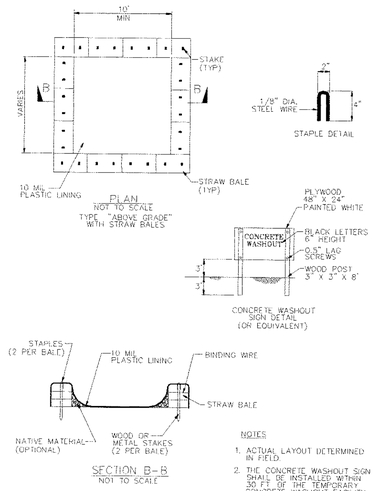
Concrete Waste Management WM-8



NOTES

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

Concrete Waste Management WM-8



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REGISTERED PROFESSIONAL ENGINEER
GUIA LIN LIU
No. 41497
EXP. 12/31/23
CIVIL
STATE OF CALIFORNIA

REVISIONS

NO.	DATE	DESCRIPTION

CITY OF GARDEN GROVE

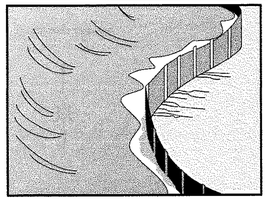
ROUGH GRADING PLAN
TRACT NO. 17702, LOT 1
BROOKHURST TRIANGLE PHASE II
BMP'S DETAIL "A"

G-1558

PRINT: 2023-06-01

SHEET 7 OF 8

Silt Fence — SE-1



Objectives

EC	Erosion Control	☑
SE	Sediment Control	
TR	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:
☑ Primary Objective
☒ Secondary Objective

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-5 Fiber Rolls
SE-6 Gravel Bag Berm
SE-8 Sandbag Barrier
SE-9 Straw Bale Barrier

Description and Purpose

A silt fence is made of a filter fabric that has been entrenched, attached to supporting poles, and sometimes backed by a plastic or wire mesh for support. The silt fence detains sediment-laden water, promoting sedimentation behind the fence.

Suitable Applications

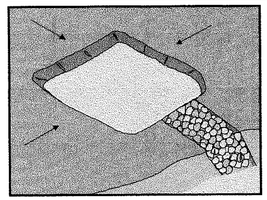
Silt fences are suitable for perimeter control, placed below areas where sheet flows discharge from the site. They should also be used as interior controls below disturbed areas where runoff may occur in the form of sheet and rill erosion. Silt fences are generally ineffective in locations where the flow is concentrated and are only applicable for sheet or overland flows. Silt fences are most effective when used in combination with erosion controls. Suitable applications include:

- Along the perimeter of a project.
- Below the toe or down slope of exposed and erodible slopes.
- Along streams and channels.
- Around temporary spoil areas and stockpiles.
- Below other small cleared areas.

Limitations

- Do not use in streams, channels, drain inlets, or anywhere flow is concentrated.

Sediment Trap — SE-3



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☒ Secondary Objective

Targeted Constituents

Sediment	☑
Nutrients	
Trash	☑
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-2 Sediment Basin (for larger areas)

Description and Purpose

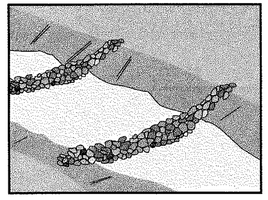
A sediment trap is a containment area where sediment-laden runoff is temporarily detained under quiescent conditions, allowing sediment to settle out or before the runoff is discharged. Sediment traps are formed by excavating or constructing an earthen embankment across a waterway or low drainage area.

Suitable Applications

Sediment traps should be considered for use:

- At the perimeter of the site at locations where sediment-laden runoff is discharged offsite.
- At multiple locations within the project site where sediment control is needed.
- Around or upslope from storm drain inlet protection measures.
- Sediment traps may be used on construction projects where the drainage area is less than 5 acres. Traps would be placed where sediment-laden stormwater may enter a storm drain or watercourse. SE-2, Sediment Basins, must be used for drainage areas greater than 5 acres.
- As a supplemental control, sediment traps provide additional protection for a water body or for reducing sediment before it enters a drainage system.

Check Dams — SE-4



Objectives

EC	Erosion Control	☒
SE	Sediment Control	☑
TR	Tracking Control	
WE	Wind Erosion Control	
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WM	Waste Management and Materials Pollution Control	

Legend:
☑ Primary Objective
☒ Secondary Objective

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-5 Fiber Rolls
SE-6 Gravel Bag Berm
SE-8 Sandbag Barrier

Description and Purpose

A check dam is a small barrier constructed of rock, gravel bags, sandbags, fiber rolls, or reusable products, placed across a constructed swale or drainage ditch. Check dams reduce the effective slope of the channel, thereby reducing the velocity of flowing water, allowing sediment to settle and reducing erosion.

Suitable Applications

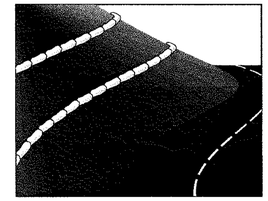
Check dams may be appropriate in the following situations:

- To promote sedimentation behind the dam.
- To prevent erosion by reducing the velocity of channel flow in small intermittent channels and temporary swales.
- In small open channels that drain 10 acres or less.
- In steep channels where stormwater runoff velocities exceed 5 ft/s.
- During the establishment of grass linings in drainage ditches or channels.
- In temporary ditches where the short length of service does not warrant establishment of erosion-resistant linings.

Limitations

- Not to be used in live streams or in channels with extended base flows.

Gravel Bag Berm — SE-6



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Targeted Constituents

Sediment	☑
Nutrients	
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Organics	

Potential Alternatives

SE-1 Silt Fence
SE-5 Fiber Roll
SE-8 Sandbag Barrier
SE-9 Straw Bale Barrier

Description and Purpose

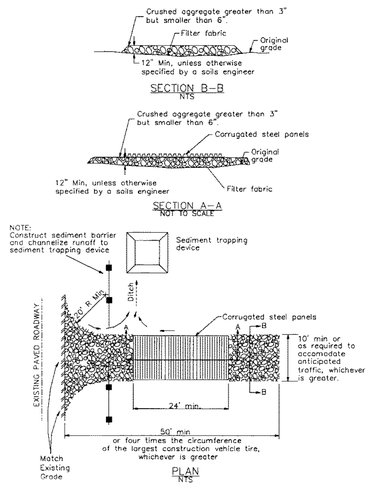
A gravel bag berm is a series of gravel-filled bags placed on a level contour to intercept sheet flows. Gravel bags pond sheet flow runoff, allowing sediment to settle out, and release runoff slowly as sheet flows, preventing erosion.

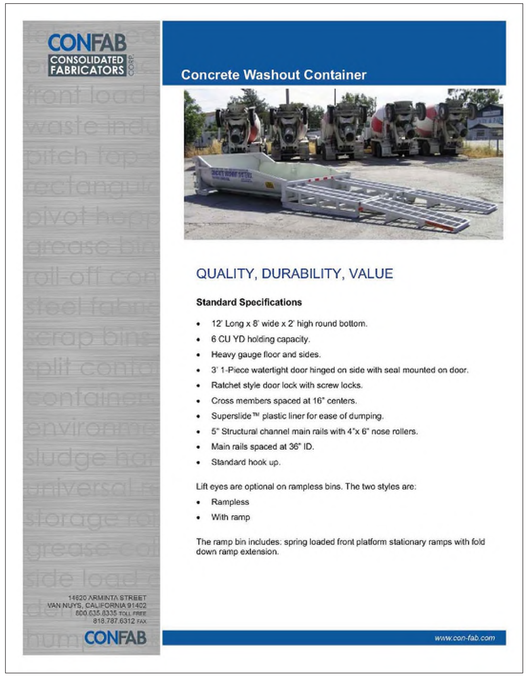
Suitable Applications

Gravel bag berms may be suitable:

- As a linear sediment control measure:
  - Below the toe of slopes and erodible slopes
  - As sediment traps at culvert/pipe outlets
  - Below other small cleared areas
  - Along the perimeter of a site
  - Down slope of exposed soil areas
  - Around temporary stockpiles and spoil areas
  - Parallel to a roadway to keep sediment off paved areas
  - Along streams and channels
- As linear erosion control measure:

Stabilized Construction Entrance/Exit TC-1





TYPICAL CONCRETE WASHOUT CONTAINER
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SHEET 8 OF 8