SECTION III

CONSTRUCTION OBSERVATION AND STORMWATER QUALITY MANAGEMENT

III-1. GENERAL

Each phase of improvements, constructed to these specifications, must be observed by the City Engineer or City Engineer's representative prior to proceeding with subsequent phases.

The City will observe, as considered necessary, the construction of public improvements. Public improvements required as a condition of approval of any land development, entitlement, or building permit shall be constructed as approved by the City Engineer. Improvements constructed without observation or approval as provided above or constructed contrary to the direction of the City Engineer or authorized representative, will not be accepted. Work that is not accepted shall be removed and reconstructed in conformance with the approved City Plans.

III-2. CONSTRUCTION AND CONSTRUCTION OBSERVATION

A. Preconstruction Meeting

1. A preconstruction meeting shall be conducted prior to the start of work. The contractor and sub-contractors shall be present at this meeting. Starting work without a preconstruction meeting will result in a stop work notice and removal of any unauthorized work to the City Engineer's satisfaction.

B. Potholing

1. The first order of work on all underground projects, or projects affecting utilities shall be potholing. The contractor shall notify the City of their intent to pothole utilities 72-hours prior to the start of work. Failure to notify the City shall result in an immediate stop work notice. For field confirmation of water mains and services, Contractor shall pothole and daylight 12 inches minimum all-around mains and services.
2. ***Pipe Bursting, HDD and Jack and Bore Work*** – No pipe bursting will be allowed without potholing any utility that could be affected by the pipe bursting work. Pipe bursting will only be allowed after the affected utility and City Engineer approves pipe bursting near the affected infrastructure.

C. Compaction Standards - The Project Engineer shall collect compaction data throughout construction and as required by the CBC. Following completion of the work, the Project Engineer shall provide compaction reports to the Department (see Section III-3), certifying compliance with these requirements, for all the following areas:

1. Each graded lot pad.
2. All roadways (Compaction tests in these areas shall comply with the State Standard Specifications).
3. All roadway shoulders (Compaction tests in these areas shall comply with the State Standard Specifications).
4. All sidewalk areas, where applicable (Compaction tests in these areas shall comply with the State Standard Specifications).

D. Elevation Certification (Flood Zones) - The Project Engineer shall collect elevation data for all graded lot pads. Following completion of the work, the Project Engineer shall provide elevation certifications to the City prior to grading final, or building foundation pour, whichever occurs first. The elevation of all structures shall comply with the City's Flood Control Ordinance.

E. Inspections:
   1. The Developer shall be responsible for ensuring that all required inspections are requested and performed; the Project Engineer shall be responsible for the competency of all required Special Inspections.
   2. Special Inspections: The Project Engineer shall either: (a) document that no Special Inspections are required, or (b) prepare a Statement of Special Inspections in accordance with CBC Chapter 17, Section 1704. All Special Inspections shall be listed on the plan cover sheet in table format. A report of Special Inspections shall be provided to the City Engineer prior to project closeout. The cover sheet table shall include space for the Special Inspector to sign before construction proceeds to the next stage of construction if required by the Project Engineer.
   3. In Commercial Retail, Commercial Service, Office/Professional and Industrial land use categories, or other sites were determined necessary by the City, an inspection shall be required prior to building foundation pour, to verify the relationship between building floor elevations and back-of-sidewalk elevations.
   4. Rough Grading Certificate – A Rough Grading Certificate, when required, must be signed by the Project Engineer, Grading Contractor, and Soils Engineer and submitted to the City prior to foundation pour. Tracts that include multiple lots may be included on a single form. When certifying multiple lots, each lot must be listed on the form or as an attachment. Compaction test(s) must be included with the signed Rough Grading Certification.
   5. Retaining Walls Inspection - Inspections are required at several phases of wall construction by the Building Department.
      a. Footings (prior to pour)
      b. Walls:
      c. Masonry: Pre-grout/reinforcement steel (prior to grouting)
      d. Reinforced concrete: Forms and reinforcement steel (prior to pouring)
   6. Backfill/drainage (prior to backfill)

III-3 ACCEPTANCE OF PUBLIC IMPROVEMENTS

At the completion of construction of public improvements, the Project Engineer shall submit the following items to the City Engineer:

- Elevation Certificate or Other Flood Zone Permitting.
- Rough Grading Certificate(s)
- Project Engineer's Improvement Certification
- Soil and Compaction Testing Reports
- Material Compliance Reports
- Special Inspection Reports
- Record Drawings and GIS Data (see Section II)
- Other documentation that may be required by the City Engineer to determine satisfactory completion of the project.

All improvements constructed in public rights-of-way established by subdivision maps must be formally accepted by the City Council. The City Engineer shall determine which improvements are subject to City Council Acceptance. The City shall not assume responsibility for any improvement subject to City Council Acceptance before such acceptance is approved by the City Council.

III-4. STORMWATER QUALITY

Water Quality
This section applies to both public and private projects regardless of size. The purpose of these requirements is to prevent the pollution of storm water runoff and non-storm water discharges from construction projects, regardless of size.

All construction activities shall be performed in a manner that prevents, to the maximum extent practicable, the discharge of any non-storm water discharges and pollutants from entering directly or indirectly the storm water system, and natural waterways.

A. Erosion and Sediment Control

1. Erosion prevention techniques are designed to protect soil particles from the force of rain and wind so that they will not erode. These techniques include but are not limited to such things as construction scheduling, ground cover and plantings, and installation of erosion control geotextiles and mats.
2. Sediment control measures are designed to capture soil particles after they have been dislodged in order to retain the soil particles on-site. These measures include, but are not limited to silt fences, sediment barriers, and settling or sediment detention basins. Both erosion prevention techniques and sediment control measures have appropriate uses; however, it has been shown that sediment control measures are less effective in preventing soil movement and water quality impacts than erosion prevention techniques.

B. Erosion and Sediment Control (ESC) Plan Submittal

1. A site-specific Erosion and Sediment Control Plan (ESC) shall be submitted with all grading and building plans regardless of size.
2. Projects that disturb more than 50 cubic yards of soil, steep sites, or if there is an erosion and sediment potential, use the ESC Form (SW-020). Sites 1 acre or greater in size must submit an ESC Plan in accordance with Section 2 below and requirements under Section C below.
3. A Stormwater Pollution Prevention Plan (SWPPP) developed pursuant to the Construction General Permit (CGP) may be substituted for the ESC Plan. The City will review the sections applicable to erosion and sediment control.
4. The ESC Plan must be approved in writing by the City Engineer or City Engineer's representative prior to the grading or building permit being issued.
5. If any part of the ESC Plan is revised, it must be approved in writing by the City.

C. Erosion and Sediment Control Plan Requirements – Refer to the ESC Plan Review Checklist (SW-018)

The ESC shall include:

1. A written narrative shall be included with the grading plan with a signed sheet by the person responsible for the plan preparation. The ESC narrative shall include the following:

    a. A list of applicable environmental permits directly associated with the grading activity
    b. Waste Discharge Identification Number (WDID#) and contact information for the Qualified SWPPP Developer and Practitioner (QSP/QSD).
    c. Contractor information including a 24-hour telephone number of person responsible for erosion and sediment control
    d. Construction schedule for the entire length of the project
    e. Description of vegetation and distance to nearest waterways
    f. Description of critical areas of high erosion potential such as unstable slopes
    g. Description of erosion control measures of slopes, lots, streets, etc.
    h. Description of sediment detention basins, including design assumption and calculations
    i. The rationale used for selecting BMPs including supporting soil loss calculations, if necessary

2. Site Plan
   The site plan shall include the following information:
    a. Scale, north arrow and legend
    b. Vicinity map

c. Watershed boundaries with project
d. Waterway top of bank, delineation of any waterway buffer areas and existing vegetation and any special trees to be fenced and protected
e. Location and types of temporary and permanent erosion and sediment control measures
f. Signature block for plan preparer
g. Areas disturbed both for access (i.e. constructing access roads) to the site as well as preparing the site for constructing the project;
h. Grading of the project site in total;
i. Equipment and materials staging/storage area, maintenance area, and construction easements if they occur on a soil surface which has not already been included;
j. Footprint of material and/or soil stockpiles if on a soil surface;
k. Area of asphalt or concrete pavement removal if it is removed entirely to the soil surface;
l. Area that is related to demolition and removal of existing structures if that demolition and removal is to the soil surface;
m. Concrete truck clean-out areas; and
n. Installation of upgraded surfaces (gravel roads upgraded to asphalt, etc.).

3. Grading Plan Notes – The following must be included on grading plans:

a. Sediment and Erosion Control Best Management Practices (BMPs) shall be always implemented on all projects and shall include pollutant source control, protection of stockpiles, protection of slopes, protection of all disturbed areas, protection of site access points, and perimeter containment measures.
b. Appropriate BMPs shall be installed prior to the commencement of grading and site disturbance activities. The intent of the BMP shall be to prevent disturbed sediment from entering drainage conveyances, generating fugitive dust, or migrating onto adjacent properties or the public right-of-way.
c. Site inspections and appropriate maintenance of all BMPs shall be conducted and documented throughout construction and especially prior to, during, and after rain events.
d. The Developer shall be responsible for the installation and maintenance of all BMPs as specified by the approved ESCP until such time that the project is accepted as complete by the City or until the CGP for Stormwater Discharge Notice of Termination is approved by the State Water Resources Control Board.

e. Erosion control BMPs may be relocated, modified, or added depending on field conditions encountered during construction. Additional BMPs shall be installed at the discretion of the site superintendent, Engineer of Record, City Inspector, Qualified SWPPP Practitioner (QSP), or

State Water Resources Control Board. Guidelines for installing appropriate erosion control devices shall be included in the plans with additional measures/devices noted.

f. Erosion and sediment control BMPs shall be available, installed, and/or applied prior to commencement of construction, installed appropriately as construction progresses, and maintained in operable condition until final stabilization of the site is achieved. Erosion and sediment control BMPs are required year-round.
g. Wet Weather Preparation: The Contractor, Developer, and Project Engineer shall be responsible to review the condition of the project site prior to 50%> chance of rain and to coordinate an enhanced BMP implementation plan for wet weather conditions. A locally based standby crew for emergency work shall be available at all times during the wet weather conditions, (typically October 15 through April 15). Necessary materials shall be available and stockpiled at convenient locations to facilitate rapid maintenance or repair of the BMP throughout the rainy season.
h. In the event of a failure, the Developer and/or his representative shall be responsible for cleanup and all associated costs or damage. In the event that damage occurs within the right- of-way and the City is required to perform cleanup, the owner shall be responsible for City reimbursement of all associated costs or damage.
i. In the event of repeated failure and/or lack of performance by the Developer and/or Contractor to correct sediment and erosion control related problems, the Department may revoke all active permits. The City may issue a written notice or stop work order in accordance with the municipal code. Daily penalties may be assessed for failure to comply.
j. Final stabilization (70% Final Cover, RUSLE/RUSLE2) of the site shall be established on all disturbed surfaces prior to final acceptance. Where vegetation is used for final stabilization, vegetation must be mixed and applied in accordance with the below table and specifications. Temporary erosion control measures shall remain in place until final stabilization is achieved.

Hydroseed Mix for Stabilization

Species	Pounds per Acre
California Brome (*Bromus carinatus* "Cucamonga")	12 lbs/ac
Small Fescue (*Festuca microstachys*)	5 lbs/ac
Tomcat Clover (*Trifolium willdenovii*)	2 lbs/ac
California Poppy (*Eschscholzia californica*)	1.5 lbs/ac
Sky Lupine (*Lupinus nanus*)	2 lbs/ac
Goldfields (*Lasthenia californica*)	0.5 lb/ac

Install seed mix at rate of 23 pounds per acre on all disturbed, uncompacted soils. Incorporate compost, fiber, and tackifier per applicator specifications based on site slope and soil type.

k. The County Air Pollution Control District (APCD) may have additional project specific erosion control requirements. The Contractor, Developer, and Project Engineer shall be responsible for maintaining self-regulation of these requirements.
l. If Construction General Permit for Stormwater Discharge enrollment is necessary, the Developer (or legally responsible agent) shall submit the required Permit Registration Documents to the State Water Resources Control Board and provide proof of enrollment to the City prior to commencement of construction activities. The project Waste Discharge Identification Number (WDID#) is: _____.

4. Best Management Practices
Show all Best Management Practices (BMPs) on the site plan. BMPs are required year-round, not only during the rainy season. Downstream storm drain inlets in the vicinity of the project must be protected year-round. BMPs must be adequate to maintain overall site stability and prevent soil loss across the site. BMPs may need to be updated as conditions change. These Construction Site BMPs provide both temporary erosion and sediment control, as well as control for potential pollutants other than sediment. There are six categories of BMPs suitable for controlling potential pollutants on construction sites. BMPs from each of the six categories below, when applicable, shall be included in the E&SCP:

a. Soil Stabilization BMPs

1). Preservation of existing vegetation
2). Hydraulic mulch
3). Hydroseeding
4). Soil binders
5). Geotextiles, plastic covers and erosion control blankets
6). Wood mulching
7). Earth dikes/drainage swales and ditches
8). Outlet protection/velocity dissipation devices
9). Slope drains
10). Streambank stabilization

b. Sediment Control Practices

1). Silt Fence
2). Gravel bag berm
3). Desilting basin
4). Sediment trap
5). Check dam
6). Fiber rolls
7). Storm drain inlet protection
8). Street sweeping and vacuuming

c. Tracking Control Practices

1). Rock entrance or steel plates with ribs
2). Stabilized construction roadway; and
3). Entrance/outlet tire wash

d. Wind Erosion Control

1). All graded surfaces and materials shall be wetted, treated or to prevent dust from leaving the site
2). Stockpiles shall be protected year-round from blowing dust
3). Upon completion of grading the site shall be thoroughly wetted in order to form a crust over the exposed dirt surfaces. Further applications or other methods acceptable to the City Engineer may be necessary if the site is disturbed

e. Source Controls

Source control BMPs that prevent pollution by limiting or reducing potential pollutants at their source before they come in contact with storm water for the following operations must be in place throughout all grading and construction phases when applicable.

1). Vehicle and equipment fueling
2). Dewatering operations
3). Vehicle and equipment maintenance
4). Paving and grinding operations
5). Temporary stream crossing
6). Concrete curing
7). Saw cutting
8). Illicit connection/illegal discharge
9). Potable water/irrigation
10). Vehicle and equipment cleaning

f. Waste Management and Materials Pollution Control BMPs for the following activities related to waste management and materials pollution control are required to prevent pollution by reducing pollutants at their source, and require a clean, well-kept site.

1). Material delivery and storage
2). Material use
3). Hazardous waste management
4). Contaminated soil management
5). Stockpile management
6). Concrete waste management

7). Spill prevention and control
8). Sanitary/septic waste management
9). Solid waste management
10). Liquid waste management

Perimeter controls must be sized/scaled appropriately for the area disturbed and slopes on the plans. For large areas of disturbance or steep slopes, a single fiber roll at the perimeter is not appropriate. Perimeter controls must follow contours of the site grading plan and not adversely concentrate flows. Controls must be in place wherever stormwater may run on or run off of the site. It may not always be appropriate for Perimeter controls to surround the entire site.

On finished and/or inactive slopes, provide effective soil cover for inactive areas and all finished slopes, open space, utility backfill, and completed lots. Inactive areas are areas that have been disturbed and are not scheduled to be re-disturbed for at least 14 days. Specify appropriate cover on finished/inactive slopes or surfaces. Cover may include: biodegradable erosion control blankets (straw, coconut coir, excelsior, etc.), tacked straw, chipped mulch, temporary soil binder, or vegetation (fast-growing native grass). On finished/inactive slopes apply linear sediment controls along the toe of the slope, face of the slope, and at the grade breaks of exposed slopes. Linear sediment controls must be spaced with a sheet flow length across the soil not to exceed 20 feet. Common linear controls include fiber rolls or benches.

D. State General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities

Any construction activity that disturbs 1 acre or more of land, or disturbs less than 1 acre but is part of a larger common plan of development or sale, must comply with the Construction General Permit (CGP). The WDID # or proof of a waiver must be submitted to the City prior to issuance of a grading permit.

The Contractor shall maintain a copy of a SWPPP prepared in compliance with the CGP, on site at all times. The Contractor shall be responsible for implementing, maintaining, and repairing all storm water pollution controls or Best Management Practices (BMPs) described in the SWPPP for the duration of the work.

The project owner will be responsible to the City for any damages to City resulting from failure to make the repairs or properly maintain pollution prevention devices. The Contractor is responsible for submitting an annual compliance certificate to the State Water Board.

E. Erosion Control and Stormwater Management Manuals/Handbooks

The following manuals may be used as a reference:

- 2012 CASQA Construction BMP Handbook https://www.casqa.org/resources/bmp-handbooks
- CalTrans Manuals and Handbooks
- EPA's Construction Stormwater Runoff Control BMPs

F. Site Inspections

Pursuant to Section 14.20.270, of the City Code, The City's Public Works Director and authorized officials (i.e., Stormwater Program Manager, Water Quality Inspector) are authorized to enter any premises to inspect, monitor, and/or collect samples, as necessary, to ensure compliance with the City's construction stormwater program. As such, the following actions shall occur.

1. Inspections shall occur during wet weather conditions, all projects must be inspected by a representative of the Public Works Director to ensure all necessary erosion and sediment controls are in place prior to any land disturbance.
2. Periodic site inspections at any time throughout the active project period shall be performed to ensure compliance with the ESC Plan.
3. At the conclusion of the project, an inspection will be conducted to ensure that the project site is appropriately completed (i.e., landscaped, slopes are secure, etc.) and that all erosion and sediment control measures that are no longer needed and have been removed.

G. Contractor Training and Awareness

1. All employees/subcontractors shall be trained on the storm water pollution prevention requirements contained in these specifications.
2. CalTrans Stormwater Training