



## Scope of Work

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## Technical Approach and Work Plan Understanding

As your plan check consultant, ERSC is ready and able to provide to you an objective, independent, and impartial review of project submittals. This typically includes comprehensive review of CIP and development projects as well as their associated improvement plans and studies. The review period of any project within the City is reviewed against engineering design theory, City/Applicable Design Standards, Ordinances, Conditions, and other requirements as applicable. ERSC offers flexibility in our approach to match the needs of City of Rialto.

## Approach

ERSC has become well versed in the many special nuances that must be observed by anyone processing plans and studies for approval with ERSC's plan check clients. Documents such as the State Subdivision Map Act, Standard Specifications for Public Works Construction, Americans with Disabilities Act requirements, and the California Building Code are applicable. Other facets of a particular project, such as water quality or traffic improvements, are governed by the Construction General Permit, MS4 Permit, the WQMP guidance document, California Best Management Practices Handbook for storm water BMPs, Manual on Uniform Traffic Control Devices, the State of California Highway Design Manual, Caltrans standard specifications & standard drawings, San Bernardino County Standard Plans and Specifications, San Bernardino County Public Works Hydrology Manual, SWQCB General Permits, and the United States Army Corps of Engineers Permit requirements are applied respectively and where applicable.

Local guidance documents such as the City Grading Notes for Improvement Plans, City Encroachment Permit Application Package, City Municipal Code, City General Plan, and City Specific Plan Elements are also applied when appropriate.

ERSC staff understands the importance of ensuring that all Conditions of Approval are incorporated into the design of the project to confirm how the Developer or Engineer have complied with the requirements of the City's Planning Commission and the City Council

to mitigate the impacts of the project. This requires a complete and thorough review of Conditions of Approval imposed by the Planning, Fire, Public Works, and Engineering Departments.

## Process Applicable to all Plans/ Subdivision Maps/Studies

- a) Review initial submittal package for completeness. General items include title report, tentative map and conditions of approval; grading plans may require a geotechnical report and hydrology study; storm drain plans require hydraulic calculations; sewer and water plans may require support calculations; final maps require supporting record maps, recorded grant deeds, easements, and closure calculations.
- b) Research and review files for past projects near or adjacent to current project. Verify ownership. View site aerials and photos with Google Earth or GIS and review conditions onsite and adjacent improvements. Prepare notes. Initiate review of plans and supporting documents. Verify drawing content per City guidelines including title block, file number, RCE signature block, benchmark, and proper drafting technique. Verify compliance with conditions of approval. Verify WQMP template.
- c) Verify general notes and content, construction notes, quantities. Include project title, list utility companies with contact information, vicinity and index map, legal description, APN, site ownership, and address. Verify references to standard drawings and details in construction notes.
- d) Compliance with applicable provisions of the City's Standards and local Civil Engineering industry design standards and conformance to all local ordinances, policies and procedures.
- e) Compliance with applicable Specific Plans and Community Plan design requirements.
- f) Review of engineering design principals and requirements, which includes plan check of cross section and profiles, right-of-way lines, construction limits, and center line control.
- g) Review of special studies including, but not limited to, drainage, water quality, geotechnical, structural (including but not limited to structural analysis of bridge structures) and traffic studies. The studies will be checked to assure they are

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conceptually sound and meet City, County and State Standards.

h) Review of format, which includes plan check of general notes, construction notes, drawing and utility legends, benchmark, basis of bearing, construction quantities, vicinity map, location map, standard sheet and title block, north arrow etc.

i) Recommendation of accurate construction quantities and engineering's cost estimate for bonding purposes or Landscape Maintenance District formation.

j) Conformance to City's preferred format and layout.

## Process for individual Improvement Plan Checking and Special Study Review

Plan check for civil engineering design plans which may include, but is not limited to: street, sewer, water, recycled water, storm drain, grading, erosion control, signing and striping, street lighting, traffic signal and all related engineering studies, including hydrology and hydraulics, WQMP, soils, water & sewer studies and structural analyses. Plan, study, and calculation review services will include, but not be limited to, the following:

**Grading Plans** – Verify conformance with City guidelines and geotechnical report; show boundary information, easements, and adjacent lot numbers; show street dimensions, existing utilities, sewer lateral and water meter; review and verify perimeter conditions; cross reference with street and drainage plans and final map; verify compliance with California Building Code for grading and accessibility; verify minimum slope requirements and drainage control at top of slope; verify slopes, top of grate and invert elevations on drains; verify retention basin and BMP's, show building locations/setbacks; show critical elevations, i.e. high points, thresholds, verify location of perimeter walls and retaining walls; show top of wall and finished surface at critical points. For commercial grading verify parking design per City standards; verify the accessible path of travel, parking, and signage; verify driveway/lane widths, fire access, and structural section. For all grading plans, verify conformance with FEMA requirements.

**Street Plans and Alignment Review** – Verify design speed, geometrics, and cross section; show typical section with cross fall and dimensions; verify minimum/maximum street grades and cul-de-sac design; verify structural section (AC/CMB); verify bearings, curve data (centerline and curb) and stationing; show stations/elevations at intersections, EC/BC and ECR/BCR; verify "join" elevations extend topography; show saw cut line and feathered paving; provide supplemental cross sections for widening; show driveway approaches and cross gutters; show drainage devices, easements, and lot lines/numbers. In the profile, show existing/proposed profile at centerline, curb left & right; show stations at begin/end construction, intersection, EC/BC and even stations; show slope, elevations at critical points and grade breaks; show the location, length, and PI for vertical curves; show projection and length of curb returns/verify design; profile "grade to drain" and show elevations.

**Storm Drain Plans** - Verify size and design flow per City's master plan, if applicable; design per Flood Control standards; verify alignment, geometrics, and stationing; show existing utilities (OH/UG); show catch basins, manholes/junction structures and inlet/outlet structures with details when required; show, obtain, and/or verify drainage easements; show invert elevations at inlet/outlet, structures, and grade breaks; verify design flow and street capacity with hydrology study; show HGL, flow rate, and velocity for main line and lateral; coordinate with hydraulic calculations; verify coordination with regulatory agencies as required. Storm drain plans will be checked against hydrology and hydraulic calculations to verify their design accuracy as required by the City Standards and coordinated with the City's Storm Drain Mater Plan for the design of mater planned lines.

**Water Plans** - Verify size per City's master plan; verify minimum velocity and slope requirements; verify pipe material and class; verify meter, restraint and AR/AV calculations; verify compliance with CDPH separation requirements; verify alignment and stationing; show existing utilities (OH/UG); verify minimum cover and maximum & valve spacing; verify valve placement; show stations and elevations at cleanouts, valves, fittings, and fire hydrants; verify cross-connection requirements; show easements.

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Water and Recycled Water Plans shall be coordinated with the City's Water and Recycled Water Master Plan for design of master planned lines.

**Sewer Plans** - Verify size per City's master plan; verify minimum velocity and slope requirements; verify minimum lateral slopes; verify compliance with CDPH separation requirements; verify alignment and stationing; show existing utilities (OH/UG); verify minimum cover and maximum manhole spacing; show stations and elevations at manholes, cleanouts and laterals; show easements. Sewer plans shall be coordinated with the City's Sewer Master Plan for design of master plan lines.

**Sewer Study** – Review City's sewer master plan; verify tributary area; verify existing pipe size and existing flow; determine proposed pipe size; verify sewer loading and peaking factors; determine/verify EDU's, average daily flow; peak hour dry weather flow, peak hour wet weather flow; review pipe size calculations; verify d/D ratio and minimum velocity requirements; verify downstream pipe capacity.

**Landscape and Irrigation Plans** – Verify compliance with City guidelines and ordinances; review/verify existing water system pressure and flow data; review meter size and calculations and location; verify cross-connection protection; verify location of controller, rain sensor and service pedestal; review pipe sizes and supporting calculations; review systems layout including head and emitter location; review location, size and configuration of anti-siphon valves and gate valves; review soils tests and method of soil preparation; review and confirm plant palette and plant spacing; review and confirm ground cover type and spacing; review and confirm street trees, spacing and tree grate location; confirm shrub and tree planting methods; verify sight distance requirements; confirm proper use of edge treatments, root barriers and rock mulch. For Landscape Maintenance District plans verify compliance with the Guidelines and Specifications for Landscape Development, Landscape Architecture Development Plan Requirements and Irrigation, Planting and Maintenance Requirements.

**Tentative, Final Maps, and Survey** - Check to assure compliance with applicable provisions of the

State Subdivision Map Act, Land Surveyor's Act, City Municipal Code, Conditions of Approval and other City requirements, and all other applicable state statutes and local ordinances; Review of map sheets for centerline control, lot closure calculations, mathematical accuracy, surveyor notes and symbols, monumentation per City Standards, & survey procedures; Review of boundary retracement procedures & title reports; Review of format statements and certificates; Monitor of coordination response to Civil Engineers / Land Surveyors; Conformance to City's preferred format and layout; Verify conformance to City's Subdivision Map Review Checklist.

**Title Reports** - Review title report to confirm that the legal description, ownership, vesting, trustees and beneficiaries are correctly shown; Review title insurance exceptions to confirm that rights of way and easements are correctly listed and plotted; Verify that applicable rights of way, easements and mineral rights are correctly listed as signature omissions; Verify that subdivider has requested non-interference letters from public entities and public utility companies.

**Soils Reports and Geotechnical Reports** - Review and comment on private project Geotechnical and Geology Reports including but not limited to items such as soil stability, soil composition, liquefaction, compaction, foundations, etc.; Development of Geotechnical and Geology Reports for limited special public projects, as well as peer review of geotechnical and geology reports; Prepare review comments and conditions of approval of soils reports in a written format that is acceptable to the City; Review responses to review comments provided by the developer's soils engineer; Work with developer's soils engineer to resolve issues generated by review comments; Attend meetings with the City, developers, builders, engineers, and consultants in a timely manner to resolve issues generated during the report review process or during construction; Review soils reports submitted by the developer's soils engineer for proposed changes during grading; Provide technical support to the City for geotechnical engineering and geologic related issues on an as-needed basis; Provide grading inspection services on an as-needed basis to ensure compliance with City approved plans and standards.



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## **Legal Descriptions and Easement**

**Documentation** – Review title report, Schedule B documents and vesting deed; verify compliance with City application requirements; reviewing legal description for accuracy and proper acknowledgment of record and easement documents; review and verify closure calculations, review plat for proper identification of R/W, lot lines, easements and location of existing structures and utilities. For easement or R/W vacations, coordinate with local utility companies.

## **Hydrology and Hydraulics Calculations –**

Verify compliance with Flood Control methods and City requirements; verify design criteria; review and verify critical design values; review and verify model input/output and content of hydrology map; and verify narrative content. For hydraulic calculations, verify mainline, lateral and catch basin design flow, review and verify model input/output; verify methods of analysis; review design methods of catch basins, hydraulic structures and outlet protection; review maximum velocity, junction losses, freeboard and outlet conditions; and verify hydraulic data on storm drain plans.

**Water Quality Management Plans** - Verify storm water management requirements applicable to the project, source control/site design, pollutant controls and hydromodification management; review performance requirements for source control and site design BMP's, storm water pollutant control BMP's and hydromodification management BMP's. For a Standard WQMP verify project information and ownership, construction storm water BMP's, post construction source control BMP's and post construction site design BMP's. For Priority Development Projects, verify onsite pollutant control BMP's or combination BMP's, BMP selection process and BMP sizing necessary to meet storm water pollutant control standards.

## **Storm Water Pollution Prevention Plans**

- Verify proper format and content; verify QSD certification and Legally responsible person, verify SWPPP requirements and content of Notice of Intent; review and verify project information, risk level determination and non-storm water discharges; review and evaluate best management practices and

BMP inspection & maintenance requirements; review training requirements and responsible parties; review & evaluate monitoring and reporting requirements, sampling, analysis, and QA/QC requirements; review references documents.

## **Erosion and Sediment Control Plans -**

Verify plan adheres to City requirements; Verify WDID Number; Verify perimeter protection; Verify Inlet protection; Check BMPs with CASQA recommendations; Verify retention basin and BMPs, show building locations/setbacks perimeter walls and retaining walls; Verify stabilized construction entrance; Verify equipment staging areas; Verify materials storage areas; Ensure offsite inlet protection where applicable.

**Traffic Scoping Agreement** – Verify project location and scope; review project scenarios; verify/review study intersections and roadway segments; review traffic forecasting for existing conditions, future growth, ambient growth and related projects; review/verify future changes to the transportation network; verify methodology; and, verify trip generation and distribution.

**Traffic Impact Analysis** – Confirm approval of scoping agreement; verify project characteristics; evaluate traffic forecasts and supporting data; review/verify existing conditions; review future conditions without the project including intersections and roadway segment analyzes; review future conditions with the project including intersections and roadway segments analyzes; and, review the transportation management plan.

**Signing and Striping Plans** - Gather all available information including 'as-builts' and Conditions of Approval to adjacent existing improvements and future developments to provide a coordinated review. Review plans against current traffic engineering design standards, guidelines and practices; City standards for street construction; City's Guidelines for Bicycle Facilities; adhere to the Caltrans Highway Design Manual, Caltrans Traffic Manual, CA MUCTD and Caltrans Standard Plans and Specifications.

**Traffic Signal Plans** - Review and recommend approval of new traffic signal installations and

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traffic signal modifications including: review of proposed and verification of existing intersection geometrics, lane configuration and improvements; review/verification of existing utilities, subsurface and overhead obstructions; verify general notes, construction notes and standard plan references; review pole locations, mast arm lengths and ADA compliance; review/evaluate conduit layout and sizing, pull box locations; verify controller location and type, service connection and pedestal location, review pole and equipment schedule, conductor schedule and phase diagram; verify location of loop detectors or video detection zones; review/verify directional and warning signage, street name signs (illuminated v. non illuminated); review and verify vehicle storage (que), striping, pavement markings and advanced warnings.

## Street Light Plans and Voltage Drop

**Calculations** – Verify conformance with the City's Public Works Standards, Standard Specifications for Street Lights and drafting standards. Verify location at intersections, along roadways and placement within median islands. Verify pole spacing and illumination requirements. Verify pole height, mast arm length and luminaire. Verify foundation requirements and location, pedestal location, service points and availability of service. Verify conduit layout, size and material. Verify circuit design.

## Project Review Schedule

The project schedule will be determined and maintained by the project applicant. The project review schedule shall be as stated in the RFP and as outlined below:

Standard Plan Review	Plan Pickup
2 Days + 1 Day per Sheet	Within 2 Working Days of Notification

For expedited project review, the following schedule will apply.

Expedited Plan Review	Plan Pickup
50% of Standard Plan Review	Within 1 working days of notification

## City Responsibilities

ERSC expects the City to provide assignment of plan checking tasks to the ERSC project manager or to the assigned project administrator. The City will need to provide all documentation regarding the project in order for ERSC to complete a thorough review. ERSC does not require use of any City property to complete this project.