

**SOUTH JORDAN CITY
PLANNING & ZONING REVIEW FEES
(2016-2017)**

Subdivision/Condominium Preliminary	\$1489.03 + \$65.62/lot or unit
Subdivision/Condominium Final	\$1477.38 + \$297.02/lot or unit
Subdivision/Condominium Amendment	\$1352.06
Lot Line Adjustment	\$260.43
Site Plan (0-3 acres)	\$4428.98
Site Plan (3+ acres)	\$5511.38
Minor Site Plan Amendment	\$504.27
Small Residential Development	\$1161.18
Conditional Use Permit	\$625.86
Land Use Amendment	\$1004.64
Rezone	\$1413.50
Rezone and Land Use Amendment	\$1413.50
Rezone with Master Development Plan (MDP) – Required with all Mixed Use Rezones, Land Use Amendments	\$2226.95
Rezone with Development Agreement (Optional)	\$2557.28
Zone Change to P-C	\$23/acre
Text Amendment	\$1616.40
Annexation	\$1196.88
Sign Permit	\$198.45
Master Sign Design Guidelines Review	\$288
Bond Landscaping Fee	\$50
WECS (Wind Energy Conversion Systems) Review	\$608.15
Accessory Living Unit (staff review)	\$134.78
Accessory Living Unit (Planning Commission Review)	\$682.22
Residential Chickens Permit	\$57.61
Appeal to Planning Commission	\$288
Appeal to City Council (Title 16)	\$818.83
Board of Adjustment (Title 17)	\$456.18
Nonconforming Use/Lot Review	\$39
Temporary Banner/Sign Permit	\$45.02
Zoning Compliance Letter	\$250.35
Time Extension	Half of application type base fee
Open House Directional Sign	\$1 per sign

Chapter 16.24

SITE PLAN REVIEW

16.24.010: PURPOSE AND OBJECTIVES:

The purpose of this chapter is to provide minimum development standards for commercial, industrial, institutional and multi-family dwelling developments in the city. These standards apply to various components of the site, including pedestrian and motor vehicle access, parking, loading, buildings, landscaping, utility fixtures and areas, fences and walls. It is intended that functional and attractive design will be achieved through application of these standards. This chapter will encourage compatibility between adjacent developments and consistency in site design throughout the city. These regulations will encourage safe and efficient motor vehicle and pedestrian movement, enhance the urban environment and reduce or eliminate visual clutter. (Ord. 2007-01, 1-16-2007)

16.24.020: SITE PLAN REVIEW REQUIRED:

- A. All proposed commercial, office, industrial, multi-family dwelling or institutional developments and alterations to existing developments shall meet the site plan review requirements outlined in this chapter and the requirements of the individual zone in which a development is proposed. All provisions of this title, title 17 of this code, and other city requirements shall be met in preparing site plan applications and in designing and constructing the development. Building permits may not be obtained nor shall any site work be performed prior to site plan approval.
- B. The community development department, after conferring with the city manager, may approve the site plan application for one building addition not exceeding ten percent (10%) of the floor area of the original building or for other minor modifications to an approved site plan which are necessary or advantageous in facilitating more desirable function and aesthetics of the development. All other site plan, land use and building requirements shall continue to be met. If desired, the applicant or the city manager may request that minor site plan modifications be reviewed according to standard site plan procedures by notifying the community development department. (Ord. 2007-01, 1-16-2007)

16.24.030: PREPROJECT SUBMISSION PLANNING:

Individuals or representatives from companies wishing to develop subdivisions within the city of South Jordan are encouraged to work with city staff to plan their project in order to ensure that it will be designed to work efficiently within the surrounding area and to meet the goals and intent of the city's general plan. (Ord. 2007-01, 1-16-2007)

16.24.040: SITE PLAN APPLICATION:

A. Application for site plan review shall be made by the owner or authorized agent of the property. The site plan application will be reviewed by city staff. A site plan application will not be scheduled for planning commission review without first satisfying all submittal requirements. The following items shall be submitted:

~~1. Application form.~~

2. Owner's or agent's affidavit.

3. Application fee.

~~4. Mailing labels and postage for adjacent property owners within three hundred feet (300') of the subject parcel obtained from the Salt Lake County recorder's office.~~

~~5. Three (3) twenty four inch by thirty six inch (24" x 36") copies and two eleven inch by seventeen inch (11" x 17") reduced copy of the site plan and the certified engineering drawings drawn to an acceptable scale, showing the following, and other information as requested by the city: (Ord. 2007-15, 9-4-2007)~~ (edited from original code to reflect current requirements)

a. Location map.

b. Vicinity plan showing adjacent parcels, lots, owners, roads, buildings and canals.

c. Address, tax identification number, legal description and acreage of subject parcel.

d. Date, scale, north arrow, dimensions of buildings, setbacks, driveways, streets, parking stalls and other proposed improvements.

e. Developer's, architect's and engineer's phone numbers and addresses (licensed architects and engineers [Utah] required).

f. Boundaries and legal description of the subject parcel and phases of the development.

g. Adjacent buildings, streets, fences, utilities, waterways and easements.

- h. Existing on site and adjacent utilities and sizes, buildings, street improvements (curb, gutter, sidewalk, pavement), easements, waterways, ditches, significant vegetation, contours at one foot (1') intervals, fault lines.
- i. Proposed exterior mechanical equipment, utilities, irrigation systems and storm drainage system.
- j. Proposed building uses, footprints, canopies, exterior stairwells and landings, floor area, elevation plans, exterior materials and colors.
- k. Proposed street improvements (curb, gutter, sidewalk, pavement), access, driveways, parking and loading areas.
- l. Proposed landscaping including species, sizes and area of landscape coverage.
- m. Proposed freestanding and wall signs.
- n. Proposed screening, fencing and trash enclosures.
- o. On and off site lighting plans.
- p. Required engineering drawings for on and off site improvements.
- q. A traffic study as directed by the city engineer.
- r. A geotechnical study as directed by the city engineer.
- s. Data table showing parcel, building, landscaping, parking areas and percentages with the number of parking stalls required and provided.
- t. Profile drawings of proposed buildings, streets, fences and other features relative to existing adjacent buildings, streets and features as directed by the city engineer.

B. After reviewing the site plan drawings, city staff may provide advisory comments to the applicant prior to scheduling the site plan on the planning commission agenda. The city engineer's approval must be obtained before the site plan application may be scheduled on the planning commission agenda. Staff comments and recommendations will not guarantee or imply approval of any portion of the site plan. All ordinance requirements must be satisfied in the site plan submittal prior to scheduling. (Ord. 2007-01, 1-16-2007)

16.24.050: PLANNING COMMISSION REVIEW:

Once all application requirements have been met, redline corrections made, revised plans submitted and city engineer's approval given, the site plan will be scheduled on the planning commission agenda for a public hearing at which public comment will be taken. Notice of the

public hearing shall be provided in accordance with chapter 16.04 of this title. The planning commission shall receive public comment regarding the site plan and shall approve, approve with conditions or deny the site plan. (Ord. 2007-01, 1-16-2007)

16.24.060: CONDITIONAL USE/SITE PLAN:

Any site plan for which a conditional use permit is required shall be processed according to procedures of this chapter and title 17, chapter 17.84 of this code. (Ord. 2007-01, 1-16-2007)

16.24.070: TIMELY COMMENCEMENT AND PHASING OF CONSTRUCTION:

A site plan approval shall remain valid for one year from the date of approval. A site plan approval shall remain valid after one year has expired if a building permit is obtained, impact fees are paid and the foundation of the main building is installed within one year of the date of site plan approval. The development shall be constructed in accordance with the site phasing plan. (Ord. 2007-01, 1-16-2007)

16.24.080: APPEAL OF A SITE PLAN EXPIRATION:

Applicants may apply for one extension of time for a site plan approval prior to the expiration of the approval. The community development director may grant one extension for up to one year from the date of expiration upon the applicant's showing of good cause (a reason rationally related to the development) and in the best interest of the city. Site plans are required to conform to current standards, ordinances and policies. An applicant may appeal the decision of the director to the planning commission in writing, within fourteen (14) days if denied. (Ord. 2009-03, 3-17-2009)

16.24.090: PAD DEVELOPMENT:

A "pad" is a lot or parcel established for development of a freestanding use and building, typically near a street, which is subordinate or related to a shopping center, office complex or other nonresidential development. A pad may only be created and developed as part of a larger shopping center or development which exists or is or will be under construction

(foundation installed) at the time a building permit is issued for the pad. The following regulations shall apply to pads:

- A. **Development Review Required:** Pads proposed for development shall be governed by this section and the development review requirements of this title and title 17 of this code.

- B. **Site Plan Approval Required:** All uses proposed on pads may be established only with a site plan approved by the planning commission. Approval will be required at the time a pad or pads are proposed with the larger development or at the time a specific pad use is proposed. The planning commission may evaluate proposed pads and pad uses and their potential effects on traffic circulation, safety, visibility and function of surrounding development.

- C. **Plat Required:** If a pad is to be sold, a lot or condominium space must be created through plat approval procedures and meet all requirements of this code and state law.

- D. **Density:** The total of the lengths and widths of all of the pad buildings may not exceed fifty percent (50%) of the total length of the street frontage of the entire development in which the pads are located. Building separations may be determined by the planning commission to preserve sightlines and/or traffic circulation in the development. Pad buildings may not be located within a one hundred foot (100') triangular area as measured from the top backs of curb of intersecting streets. (Ord. 2009-03, 3-17-2009)

Memo

TO: Engineers and Developers Working in South Jordan City

DATE: October 27, 2011

CC:

FROM: Brad Klavano, P.E., P.L.S. Director of Engineering/ City Engineer *BK*

SUBJECT: Final Construction Plan Approvals

All Public Infrastructure Construction plans require the signature of the City Engineer. After the City of South Jordan's development engineer says that your plans are approved and ready for signature the Design Engineer shall submit a set of the approved plans with City Engineer signature block on every sheet. This set will then be signed by the City Engineer. The signed set will be returned to the Design Engineer for the following copies to be returned to the City for use during construction.

- 3- 11 x 17
- 1- original full size

At the completion of the work, a pdf copy of the as-built plans must be submitted to the City. In addition, the as-built plans shall be submitted in a dxf electronic format. The City will not release the project to the warranty period until these plans are submitted and found accurate by the City Engineering Inspector.

If there are changes to be made to the plans after the signature of the City Engineer that are considered to be significant, the original construction plans with the changes in a bubble shall be submitted for a revision signature of the City Engineer. Minor changes can be addressed on the as-built plans.

The purpose to this change is to insure that the City Engineering Inspector is inspecting the project per approved set of plans. This will also, insure that the Developer's contractor has the approved set of plans to build the project with.

Thanks

Engineering Requirements for Commercial and Residential Development

Prepared by: South Jordan City Engineering Division (11/13/2012)

Prepared for: _____

ENGINEERING DIVISION REQUIREMENTS

General

The Developer is responsible for obtaining the necessary City design and construction standards, necessary permits, and for coordinating with the Engineering Department to ensure its requirements have been met. It is the Developer's responsibility to complete the work required. The Developer is responsible for expediting the work and obtaining the necessary approvals and permits to proceed with construction. This list will help the Developer meet South Jordan City's engineering requirements but is not intended to be an all-inclusive list. Additional engineering and site-specific requirements may need to be completed.

A site plan application will not be scheduled for Planning Commission review without first satisfying all submittal requirements and City staff's redline corrections.

Engineering review fees must be received prior to Planning Commission. Storm drain fees, water shares, cash or escrow bond for secondary water and cash or escrow bond for street improvements must be received prior to recording (if subdivision or condominium) or issuance of building permit (if site plan or SRD).

South Jordan City has adopted APWA manual of standard specifications, latest edition.

Guidelines and Criteria for Plan Preparation and Engineering Approval

Three (3) sets of complete plans (check prints) sealed by a registered Engineer in responsible charge.

Master plan compliance – Prior to beginning design of any facilities, the Developer shall coordinate with the Engineering Department regarding facility sizing/locations for the proposed project.

Flood plain evaluation- The Developer shall submit a flood plain evaluation performed and stamped by a registered civil engineer to document whether the property lies within a flood plain or not.

Drainage calculations- The Developer is responsible for designing and constructing pipelines and other facilities to the South Jordan City Storm Drain Master Plan.

Secondary water system- The Developer shall provide a secondary water system to all residential subdivisions with a cost estimate, which the City will analyze for feasibility.

Traffic study- Under the City Engineer's direction, the Developer shall address and pay for any traffic and transportation impacts of the project.

Geotechnical report- The Developer shall submit to the City Engineering Department for approval a geotechnical report prepared by a registered geotechnical engineer.

Subdrain/basement drain report- Under the City Engineer's direction separate report shall be prepared by a registered civil or geotechnical engineer which identifies design of subdrain/basement drains for the project.

The design shall take into account the City's design and construction standards for all publicly dedicated facilities.

A packet shall be submitted to the City's Engineering Department, which includes all design assumptions and calculations and certifies the City's standards have been followed. Final drawings shall be submitted on the City's standard size sheets of 24 x 36. Final drawings will be signed and stamped by the developer's registered professional engineer for the project.

Drawings submitted to the Engineering Department shall be organized according to the following general format:

- A. Cover Sheet (vicinity map, sheet index, etc.)
- B. South Jordan City Standard Notes
- C. Survey control data sheet
- D. Grading/storm drain plan
- E. Utility plan (master)
- F. Interior lighting/signage
- G. Detail sheet(s)

The following items are required as part of the construction plans:

- A. Copies- Three copies of construction plans are to be submitted:
 1. One set for Engineering Department review (share with Fire)
 2. One set for Planning Department review.
 3. One set to be distributed and shared at Public Works for;
Water Department review
Parks Department review
Street Department review
Storm Drain Review
One set with compiled redlines will be returned to the Developer for corrections and revisions.

All drawings shall be clear and legible and conform to good engineering and drafting practice.

Size 24 x 36 or 22 x 34 with 1/2 - inch border on top, bottom and right sides; left side shall be 1 1/2 - inches.

Plans shall include the following information:

4. North Arrow
5. Elevations reference to USGS datum
6. Stationing and elevations for profiles
7. "Call before you dig" symbol and notice (available on city website)
8. Title block locate in lower right corner of sheet to include:
 - a. Project title
 - b. Specific type and location of work
 - c. Name of engineer with license number and Utah Engineers' stamp
 - d. Name of Developer, address and Phone number
9. Scale: 1" = 20' or 1" = 40' horizontally, 1" = 2' or 4' vertically
10. Both plan and profile views for curb and gutter plans for:
 - a. Each side of street
 - b. Center line, may be eliminated
 - c. Top of curb elevations with curve data must be shown for all curb returns
11. Culinary water system – Size, type and location of mains, laterals, valves, fittings and hydrants.

12. Secondary water system – Size, type and location mains, laterals, valves, fittings, etc.
13. Other facilities
 - a. Sanitary sewer
 - b. Storm drains
 - c. Sub drains, their manholes and cleanouts
14. Irrigation facilities:
 - a. Size and location of all required irrigation piping
 - b. Data regarding flow and outfall of affected irrigation water
 - c. Separate sheets of details for etc.

ENGINEERING CHECKLIST

(Approval will not be granted until the following items are satisfied)

SATISFIED

- | | | |
|---|--------------|--|
| <input type="checkbox"/> Date: __/__/__ | Initial: ___ | 1. Geotechnical report. |
| <input type="checkbox"/> Date: __/__/__ | Initial: ___ | 2. Traffic Study submitted (when requested by City Engineer). |
| <input type="checkbox"/> Date: __/__/__ | Initial: ___ | 3. Submit culinary water model with plans. Include electronic file and site plan. |
| <input type="checkbox"/> Date: __/__/__ | Initial: ___ | 4. Utah Pollution Discharge Elimination System (UPDES) permit (from the state) for development over 1 acre. |
| <input type="checkbox"/> Date: __/__/__ | Initial: ___ | 5. Submit Storm Water Pollution Prevention Plan for all developments. |
| <input type="checkbox"/> Date: __/__/__ | Initial: ___ | 6. Written approval from UDOT required for accesses when accessing Redwood Road (1700 W), or South Jordan Parkway (10600 So.). |
| <input type="checkbox"/> Date: __/__/__ | Initial: ___ | 7. Written approval from UDOT required for storm drain tie-in when connecting into Redwood Road (1700 W), or South Jordan Parkway (10600 So.). |
| <input type="checkbox"/> Date: __/__/__ | Initial: ___ | 8. All storm runoff must be released at a rate of 0.2 cfs/acre or less for all commercial development, with any excess water being detained on property. An orifice plate may be necessary to detain and release the runoff at this rate. All calculations need to be shown and stamped by a registered professional engineer. (Commercial Only) |
| <input type="checkbox"/> Date: __/__/__ | Initial: ___ | 9. All onsite retention and detention ponds shall be designed for a 100 year 24 hour storm event. Calculations and storm intensities used in obtaining this must be shown. All calculations must be stamped and signed by a registered professional engineer. |
| <input type="checkbox"/> Date: __/__/__ | Initial: ___ | 10. Existing Conditions: Must show "Existing Conditions" for the property being developed and within one hundred feet (100') of the project's boundary. |
| <input type="checkbox"/> Date: __/__/__ | Initial: ___ | 11. Road widths match Transportation Master Plan and/or Planning Commission requirements. |
| <input type="checkbox"/> Date: __/__/__ | Initial: ___ | 12. Plans shall be stamped and signed by a Registered Professional Engineer. |

- Date: __/__/__ Initial: ____ 13. Prior to recording or final approval of a plat or site plan, the City will require a copy of the proposed development on a disk in a DXF format. Also, prior to a 90% bond release the City will require a second submittal of the As-Builts for the proposed development on a disk in a DXF format. Coordinates for both submittals must be referenced from South Jordan City's GIS survey control system.
- Date: __/__/__ Initial: ____ 14. Submit an estimate for a functioning secondary water system. This may include a pump, weir and screen.

All Sheets Must Contain the Following:

- SATISFIED
- Date: __/__/__ Initial: ____ 1. Plans must be 24" x 36"
- Date: __/__/__ Initial: ____ 2. "Call Before You Dig" symbol & telephone # (plan sheets).
- Date: __/__/__ Initial: ____ 3. Must clearly show the name (and "Phase" or "Unit") of the project.
- Date: __/__/__ Initial: ____ 4. Must be numbered consecutively and show the total number of sheets.
- Date: __/__/__ Initial: ____ 5. Must show the name, address, telephone, and fax number of the company preparing the plans, Owner and /or Developer.
- Date: __/__/__ Initial: ____ 6. North Arrow and Scale (Plan and Profile Sheets) no larger than 1"=40' horizontally/ 1"=4' vertically grades less than 5%. Grades more than 5% can be 1"=40' horizontally/ 1"=8' vertically.
- Date: __/__/__ Initial: ____ 7. Benchmark (acceptable County benchmark). Must show ID number, location, and elevation.
- Date: __/__/__ Initial: ____ 8. Must show existing improvements in, and adjacent to, the project. Must clearly distinguish "existing" and "to be constructed" improvements (Plan Sheets).
- Date: __/__/__ Initial: ____ 9. USGS datum of elevations is shown on plans.
- Date: __/__/__ Initial: ____ 10. Seal and signature of registered design professional.

Cover Sheet:

Cover Sheet must include the following:

- SATISFIED
- Date: __/__/__ Initial: ____ 1. Provide a vicinity map showing the location of the project. Map shall include a north arrow.
- Date: __/__/__ Initial: ____ 2. Provide a sheet index for all sheets in the lower right corner.

- Date: __/__/__ Initial: ___ 3. Assessor's Parcel Number.
- Date: __/__/__ Initial: ___ 4. Basis of bearing.
- Date: __/__/__ Initial: ___ 5. Benchmark I.D. number, location and elevation.
- Date: __/__/__ Initial: ___ 6. Abbreviations & Legend.
- Date: __/__/__ Initial: ___ 7. Typical sections must have R/W or PL dimensions, cross slopes, type of curb, width of sidewalks, and the structural section material and thickness shown.

Standard Notes Sheet:

Standard Notes sheet must include the following:

<http://www.sjc.utah.gov/pdf/EngineeringCSS/Chapter1StandardNotes.pdf>

SATISFIED

- Date: __/__/__ Initial: ___ 1. City of South Jordan General Notes.
- Date: __/__/__ Initial: ___ 2. City of South Jordan Grading Notes.
- Date: __/__/__ Initial: ___ 3. City of South Jordan Traffic Notes.
- Date: __/__/__ Initial: ___ 4. City of South Jordan Streetlight Notes.
- Date: __/__/__ Initial: ___ 5. City of South Jordan Fire Department Notes.
- Date: __/__/__ Initial: ___ 6. City of South Jordan Water Notes.
- Date: __/__/__ Initial: ___ 7. "Deviations from Standards" list.

Survey Control Sheet:

Survey data sheet must include the following:

SATISFIED

- Date: __/__/__ Initial: ___ 1. Basis of Bearings shown on drawing.
- Date: __/__/__ Initial: ___ 2. Benchmark I.D. number, location and Elevation.
- Date: __/__/__ Initial: ___ 3. Coordinates shown at each outside boundary corner.
- Date: __/__/__ Initial: ___ 4. Section Corner ties to boundary description.
- Date: __/__/__ Initial: ___ 5. Accurate Legal Description of Boundary.

Utility Plan Sheet (Master)

Utility Plan must include the following:

- SATISFIED
- Date: __/__/__ Initial: ___ 1. All streets named and existing & future R/W width to centerline
- Date: __/__/__ Initial: ___ 2. Show all overhead utilities located within or adjacent to site. Address any required utility pole relocations due to road widening. **Bury overhead utilities.**
- Date: __/__/__ Initial: ___ 3. Sidewalk Ramps shown
- Date: __/__/__ Initial: ___ 4. Sidewalks are provided as required (with dimensions).
- Date: __/__/__ Initial: ___ 5. Curb & gutter are provided as required (with dimensions).
- Date: __/__/__ Initial: ___ 6. Show collector street fencing is provided along any collector street for all lots that have primary frontage on an interior street.
- Date: __/__/__ Initial: ___ 7. Show all existing and "to be constructed" fencing.
- Date: __/__/__ Initial: ___ 8. Show existing and/or "to be dedicated" rights of way and easements (with dimensions) for the existing conditions
- Date: __/__/__ Initial: ___ 9. Sanitary sewer lines are provided per the requirements of South Valley Sewer District.
- Date: __/__/__ Initial: ___ 10. Written approval from South Valley Sewer District for any connections to existing line.

Waterline

Waterline plans must include the following

- SATISFIED
- Date: __/__/__ Initial: ___ 1. Plan over profile.
- Date: __/__/__ Initial: ___ 2. Culinary water lines are provided, 8" minimum C-900 PVC – DR 18 water pipe, generally located under the parkstrip on the north and east sides of the streets.
- Date: __/__/__ Initial: ___ 3. Waterline(s) located with dimensions from CL or PL (provide bearing of waterline if not parallel to CL or PL).
- Date: __/__/__ Initial: ___ 4. All valves are shown on plans including their size.
- Date: __/__/__ Initial: ___ 5. All valves are located outside of driveways, gutters, curbs and approaches.

- Date: __/__/__ Initial: ___ 6. Length of pipe between valves, pipe type, size and slope.
- Date: __/__/__ Initial: ___ 7. All lines (culinary & secondary) are required to show all valves, fittings, and thrust blocks including sleeves and hot taps.
- Date: __/__/__ Initial: ___ 8. Indicate separation at all utility crossings.
- Date: __/__/__ Initial: ___ 9. All waterline easements. (DOC# if existing).
- Date: __/__/__ Initial: ___ 10. Service laterals are provided to each lot.
- Date: __/__/__ Initial: ___ 11. All service connections are shown on plans including size. (use IPS).
- Date: __/__/__ Initial: ___ 12. The location of meter boxes is shown on plans.
- Date: __/__/__ Initial: ___ 13. All services 2" and smaller are to be equipped with a Badger meter and an ADE with pit set ITRON ERT module.
- Date: __/__/__ Initial: ___ 14. Combination air/vacuum relief valve assemblies (Apco 140C Series, Crispin UL Series, or approved equivalent) are provided at all high points of the culinary water system.
- Date: __/__/__ Initial: ___ 15. Fire hydrants are located by station and on lot lines whenever possible. Spacing 500' residential and 400' for commercial
- Date: __/__/__ Initial: ___ 16. Fire hydrants are called out as Mueller A-423 with an 18" spool.
- Date: __/__/__ Initial: ___ 17. All fire hydrants have an auxiliary valve shown on the plans.
- Date: __/__/__ Initial: ___ 18. Fire hydrant (preferred) or wash-out valve is placed at low points and end-of-line of culinary water mains to act as blow-off.
- Date: __/__/__ Initial: ___ 19. Secondary water lines are at minimum 5' from culinary water lines
- Date: __/__/__ Initial: ___ 20. Continuous-acting air/vacuum valve assemblies (Waterman CR-100 or approved equivalent) are provided on all high points of secondary water mains.
- Date: __/__/__ Initial: ___ 21. Water sampling stations to be provided and built to City specifications (residential).

Streetlighting

Streetlight plans must include the following:

- SATISFIED
- Date: __/__/__ Initial: ___ 1. All streetlights to be installed as per South Jordan City specifications.

- Date: __/__/__ Initial: ___ 2. Existing/to be constructed streetlights (located via stationing).
- Date: __/__/__ Initial: ___ 3. Street lights are provided at ends of cul-de-sacs, all street intersections, at 200' spacing (250' max) on local residential, 300' spacing (350' max) on residential collectors, and where otherwise needed.
- Date: __/__/__ Initial: ___ 4. A streetlight is located at the entrance to any pedestrian pass-through. If the pass-through is longer than 75 feet, another street light is required at the far end. Walkways longer than 150 feet will require additional lights.
- Date: __/__/__ Initial: ___ 5. Vandal resistant bollard lighting may also be required on long walkways.
- Date: __/__/__ Initial: ___ 6. Streetlights to be located on lot lines wherever possible.
- Date: __/__/__ Initial: ___ 7. Street light as-built drawings must be submitted to the city. The drawings must include location of streetlights, electrical wire and utility boxes.

Grading Plan / Storm Drain Plan

Grading and storm drain plan must include the following:

- SATISFIED
- Date: __/__/__ Initial: ___ 1. Plan over profile views. Also show crown profile if there is an offset crown.
 - Date: __/__/__ Initial: ___ 2. Show all vertical curves on plan and profile views.
 - Date: __/__/__ Initial: ___ 3. Storm drain calculations that are sealed and signed by a registered professional engineer (8 1/2 X 11).
 - Date: __/__/__ Initial: ___ 4. Engineer's note stating that the grading plan conforms to the approved drainage study
 - Date: __/__/__ Initial: ___ 5. FEMA Flood Zone limits, with elevation of high water.
 - Date: __/__/__ Initial: ___ 6. Floodplain Note/ Elevation
 - Date: __/__/__ Initial: ___ 7. Finished floor elevation of all buildings adjacent to this property and spot grades on adjacent properties to show elevation relationships.
 - Date: __/__/__ Initial: ___ 8. Pad and finished floor elevations for all new structures.
 - Date: __/__/__ Initial: ___ 9. Size, slope, location, and description of existing and "to be constructed" storm drain facilities.
 - Date: __/__/__ Initial: ___ 10. Storm drain lines, catch basins, and clean out boxes are provided as needed.
 - Date: __/__/__ Initial: ___ 11. Sized orifice, and location is called out and shown on plans.

- Date: __/__/__ Initial: ___ 12. Grate, rim and flow line elevations of all inlet boxes, combination boxes, and clean outs are shown on the plans.
- Date: __/__/__ Initial: ___ 13. Length of pipe distance between manholes, type, size, and slope.
- Date: __/__/__ Initial: ___ 14. Storm drain(s) located with dimensions from CL or PL (provide bearing of storm sewer line if not parallel to CL or PL).
- Date: __/__/__ Initial: ___ 15. Storm drain pipe within City Right of Way must be a minimum of 18-inch RCP.
- Date: __/__/__ Initial: ___ 16. Proposed and existing drainage easements, with dimensions.
- Date: __/__/__ Initial: ___ 17. Existing Contours at one-foot (1') intervals.
- Date: __/__/__ Initial: ___ 18. Proposed Contours for parking lot and landscaping at one (1') intervals.
- Date: __/__/__ Initial: ___ 19. Catch basins provided at all sag points and every 500 feet or at all intersections to intercept storm water runoff discharge. Doublewide catch basins with two grates are provided at sag points so the directional vanes can be installed in both directions.
- Date: __/__/__ Initial: ___ 20. An overland release for stormwater is provided for all sag points such that no structures would be flooded if the underground drain system were blocked or the capacity exceeded.
- Date: __/__/__ Initial: ___ 21. Subdrain System – (If project fronts Canal property/or known high groundwater table).
- Date: __/__/__ Initial: ___ 22. Cleanout box installed before entering the City's storm drain system.
- Date: __/__/__ Initial: ___ 23. All storm drainage conveyance systems shall have an oil water separator system, in heavily traveled areas (i.e. Commercial subdivisions, car washes, gas stations, etc.), in place before it discharges into the city system.
- Date: __/__/__ Initial: ___ 24. Cul-de-sacs are graded to drain away from the bulb.
- Date: __/__/__ Initial: ___ 25. Written approval from ditch master, before altering an existing irrigation ditch in anyway. Including ditch masters name and phone number.
- Date: __/__/__ Initial: ___ 26. Existing irrigation ditches are piped or abandoned as appropriate.
- Date: __/__/__ Initial: ___ 27. Existing irrigation tail water ditches or sheet flow are properly conveyed through the property.

- Date: __/__/__ Initial: ___ 28. If permission from ditch master is granted to re-route or pipe an existing irrigation ditch, the material, size, slope, length, and flow line elevations are indicated on the plans.
- Date: __/__/__ Initial: ___ 29. Percentage of grade and direction of flow for curbs and gutters.
- Date: __/__/__ Initial: ___ 30. All curb and gutter pc/pt, direction changes, sidewalks, handicap ramps, shall have finish grade calculations (FG) shown on the plans.
- Date: __/__/__ Initial: ___ 31. Road grades are minimum 0.5% and maximum 8%.
- Date: __/__/__ Initial: ___ 32. Erosion protection is provided for all cut and fill slopes.
- Date: __/__/__ Initial: ___ 33. Locate catch basins on lot lines where possible.
- Date: __/__/__ Initial: ___ 34. If Irrigation ditch is altered provided a list of names and phone numbers of all water users.

Additional Requirements – Fees, Bonds and Watershares

The following items must be satisfied prior to receiving final approval from engineering department:

- SATISFIED
- Date: __/__/__ Initial: ___ 1. Engineering review fees paid.
 - Date: __/__/__ Initial: ___ 2. Storm drain impact fees paid.
 - Date: __/__/__ Initial: ___ 3. Bond submitted for improvements by developer.
 - Date: __/__/__ Initial: ___ 4. Irrigation water shares submitted.
 - Date: __/__/__ Initial: ___ 5. Utah Power and Light connection fee paid.

All engineering requirements have been completed for issuance of building permit

- SATISFIED
- Date: __/__/__ Initial: ___ 1. Development review engineer signs-off.
 - Date: __/__/__ Initial: ___ 2. Engineering Division Director (or designee) signs-off.
 - Date: __/__/__ Initial: ___ 3. Completed Site Visit checklist.
 - Date: __/__/__ Initial: ___ 4. Completed Bond Exhibit.

Secondary Water Requirements for developers

Last Revised 12/18/2012

Specific System Design Requirements

- Water Demand Requirements: Application efficiency of 65%
- Annual requirement: 36 inches with peak demands of 11.88 gpm/acre
- Pressure ranges from 40-100 psi
- Maximum velocity of 5 fps (lines less than 24") 7 fps (lines greater than 24")
- Minimum pipe size of 8-inches
- Secondary main line must be a minimum size of 36 inches.
- Pipe to be used must be purple C-900 PVC or C-905 PVC
- All pipe must have a minimum cover of 3-feet
- 1 inch IPS individual connections or 2 inch shared (dual) connections
- Secondary lines should be installed on the South and West side of street and located in the parkstrip.

General Design Requirements

- In all cases, the canal must be empty for construction of a weir/pump station; therefore, the construction must be completed between the months of October and April.
- All weir designs must be approved by the Canal Company and South Jordan City.
- For specific design guidelines contact the Canal Company.

Pump Design Requirements

- All new weirs must be installed with a self-cleaning rotating screen.
- Flow rates on pump designs will need to be designed accordingly.
- Centrifugal pumps only to be used for individual lots (1.5 hp usually works).
- All pumps adjacent to canal should be self-priming or grading to allow for gravity feed from supply canal.
- All community pumps shall be Centrifugal or turbine type (all in front of lots).
- All pump stations shall be design above ground.
- All pump stations must have a dedicated source of pressurized water, fire hose, valve and nozzle to be provided for sump clean out with suitable drain system for clean-out water.
- All pump houses must be designed for easy crane access around the building and appropriate sky-light access to the pumps and other heavy equipment.

South Jordan Canal Company

Submit application to Larry Jacobson (President)
11515 S. 1300 W.
South Jordan City, UT 84095

The application will then be submitted to SLCFCD for approval.
Indicate the acreage to be irrigated, number of shares dedicated, and how the system will work with proposed engineering design.

Utah Lake Distributing Company & Welby-Jacob Water Users Company

The design will be submitted to the Canal Company's Engineers, and then submitted to the board for approval. Application must also be approved by SLCFCD
Contact Franson Civil Engineers at (801) 756-0309 (1276 S 820 E # 100 American Fork, UT 84003)

Utah & Salt Lake Canal Company

Submit application to Nelson Peterson (President)
P.O. Box 1181,
West Jordan, UT 84084
Application must also be approved by SLCFCD.

SECTION 3.13

WATER SYSTEM MODELING REQUIREMENTS

A water system model will be required on all final plan reviews. The following guidelines are provided.

3.13.1 Modeling Instructions

- A. In order to conduct hydraulic modeling, the developer will need to contact the City Water Division (801) 253-5230 to make arrangements to field test the water pressure at the site. The lower pressure between the field-test pressure and the pressure zone map (attached to this document and on the city website) should be used for design. The development engineer can assume that this source node serves as a fixed grade node or tank supply. Hydraulic modeling results will be provided to the City as part of the final development review submittal.
- B. City staff will integrate the development water model within the overall City system water model and evaluate the proposed development to ensure that the proposed development meets the required hydraulic conditions. In the event that development creates additional upstream impacts from the City supplied source node, the development engineer may be required to work with the City to identify appropriate system improvements to adequately serve development needs.

3.13.2 Deliverables

- The developer must submit an electronic version of the water model in the most updated version of EPANET or WaterCAD.
- The water model must contain **five (5) scenarios** showing Peak Instantaneous Flows, Peak Day Flows, Average Day Flows, Low Demand Flows, and Peak Day with Fire Flows.
- A report containing applicable spreadsheets showing all calculations stamped and signed by a Professional Engineer.
- A Utility Plan (11" X 17" is fine) containing waterline plans for the site.
- A Vicinity or Site Map of the area under review.

3.13.3 Demand Summation

For purposes of compiling the projected demand of any given development, calculate and compile the demand associated with each component noted above. The developer must provide a spreadsheet summary that identifies each demand component and sums the total demand components for each flow condition required for modeling.

3.13.4 Scenario Demand Assumptions

For Pressure Zones 1,2,3: (See attached map)

Flow Demand Scenario	Peaking Factor	Recommended Values for Water Demand Modeling
Average Daily (ADF)	1.0	0.5 gpm/ERC (Equivalent Residential Connection)
Peak Daily (PDF)	2.3	1.15 gpm/ERC
Peak Instantaneous (PIF)	4.6	2.3 gpm/ERC
Low Demand	0.4	0.2 gpm/ERC

For Pressure Zones 4,5,6: (See attached map)

Flow Demand Scenario	Peaking Factor	Recommended Values for Water Demand Modeling
Average Daily (ADF)	1.0	0.4 gpm/ERC
Peak Daily (PDF)	2.3	0.92 gpm/ ERC
Peak Instantaneous (PIF)	4.6	1.84 gpm/ ERC
Low Demand	0.4	0.16 gpm/ ERC

3.13.5 Fire Flow Demand Assumptions

Fire Flow Demand Condition	Required Flow	Required Duration
Small Residential (< 3600 SF)	1000 gpm	2 hours
Large Residential (> 3600 SF)	1750 gpm	2 hours
Other Uses	As determined by Fire Marshal on a case by case basis.	As determined by Fire Marshal on a case by case basis.

3.13.6 Non-Residential Assumptions per Land Use Type

In some instances there could be a land use type incorporated within a development that will require consideration within demand allocations. For example, a park or open space area contained within a residential development. In order to consider these types of uses, the following conversion table is provided to estimate flows.

Future Land Use Designation	Average Day Demands (Multiply by Peaking Factor for Different Scenarios)
C-C, C-N, C-F (Commercial)	2.0 gpm/acre*
MN-RD, M-U south, MU-Gate, M-UN Gate, MU-Comm, M-U city, BH-MU (Mixed Use)	2.6 gpm/acre*
PC (Large Master Planned Com)	1.73 gpm/acre*
OS (Office Space)	1.22 gpm/acre*
CI, IF (Industrial)	2.0 gpm/acre*

*Based on the South Jordan City Culinary Water Master Plan dated September of 2006.

3.13.7 Demand Summation

For purposes of compiling the projected demand of any given development, calculate and compile the demand associated with each component noted above. The developer must provide a spreadsheet summary that identifies each demand component and sums the total demand components for each flow condition required for modeling.

3.13.8 Flow Modeling Assumptions

A. The hydraulic model must be compiled in a data format compatible with either EPANET or WaterCAD. EPANET was chosen for use by the City due to the fact that it is public domain software and may be acquired free of charge. In order to obtain the software, please access one of the two sources below:

1. This software is available online at the following URL:
<http://www.epa.gov/ORD/NRMRL/wswrd/epanet.html>
2. The software is also available on CD from the South Jordan City Water Division at a cost of \$5.00 (to cover the cost of reproduction).

B. In completing the modeling, the development engineer will need to demonstrate that a number of conditions are met with the original model.

1. Demonstrate that dynamic pressures within any portion of the pipe network do not drop below 20 psi at any time.

2. Demonstrate that pipe velocities under Peak Day and Peak Instantaneous conditions do not exceed 7 feet per second (fps).

South Jordan City Construction Specifications (Updated 10/26/11)

All construction of public improvements shall conform to the most current edition of the APWA Manual of Standard Specifications, Manual Standard Plans and the South Jordan City Construction Standards and Specifications. The contractor is responsible to have a copy of these specifications. The order of precedence in case of conflict shall be (1) South Jordan City Construction Standards and Specifications (2) APWA (3) The approved Construction drawings.

Any changes from the final approved set of plans must be revised by the design engineer with stamp and signature and submitted to the South Jordan City Engineering Department for approval.

1. CULINARY WATER

A. Pipe type:

The Contractor must use Blue C-900 PVC -DR18 with tracer wire and caution tape (all wire connections need a moisture resistant nut). All trench backfill needs to be between and A-1-a and A-4 soil under the AASHTO Soil Classification System, and pass compaction test's of at least 96% in R.O.W. The pipe needs to be bedded with sand from 6" under the pipe to 18" above top of pipe.

B. Joints:

Cast iron mechanical joints. Megalug following ring or an approved equivalent shall be used on all fittings. Coat nuts and bolts with poly F.M. grease and wrap with 8-millimeter thick poly. Any MJ joints must have the bevel removed from the spicket end before being installed into MJ fitting.

C. Fire Hydrants:

Mueller Centurion A-423 or Clow Medallion hydrants only.

The Buryline must be even with top back of curb (TBC). Coat and wrap with poly and grease bolts, do the same to the auxiliary valve. An 18" spool must be placed between hydrant and auxiliary valve. Snake the pipe using mj. X fl. tee to place the fire hydrant in the center of the parkstrip. Turn the hydrant to face the street and plumb in all directions to make sure it is level. Pour large thrust block to insure stability. Make sure thrust block is poured squarely against native soil, i.e. do not make it bullet shaped or angled. Hydrant base and auxiliary valve box must be placed in 4'x 5' by 6" thick concrete pad, level with the sidewalk. Place expansion material between TBC and the sidewalk. All hydrants must have a Gravel Drain to allow proper drainage. Any hydrants installed in a P.U.D. must be mega lugged.

D. Blow Off:

All water line blow offs will require 2 water valve boxes, one for water valve and one for blow off riser. Riser shall be threaded, with a thread protector cap and placed 6" below finish grade.

E. Chlorine Test:

To be checked by the South Jordan City Water Department.

Must notify water department @ (253-5230) and set up a work order 48 hours prior to filling line.

Chlorine flushing discharge for testing needs to be regulated by diffuser or City approved equivalent.

F. Bacteria Test:

Bacteria test will be done by South Jordan City Water Department after the chlorine tests have passed and Contractor has flushed all lines.

G. Pressure Test:

Waterline must be pressure tested prior to tapping services at 200 pounds per square inch (P.S.I.) and must be maintained for 2 hours minimum and witnessed by the South Jordan City Water Department.

H. Service Boxes:

Service Boxes shall be HDPE (preferably white). Use INSTA-TITE Mueller parts.

-18" diameter box for 3/4" IPS (Iron Pipe Size) polyethylene (PE) blue pipe service.
-24" diameter box for 1" IPS (Iron Pipe Size) polyethylene (PE) blue pipe service.
-36" diameter box for 1-1/2" or 2" CTS (Copper Tube Size) polyethylene (PE) blue pipe service.
-APWA approved vault is needed for any water meters over 2".
All Polyethylene must be beveled with a manufacturer's beveling tool.
Make sure corp stop is turned on. Laterals must be compacted to 1' behind sidewalk.

I. Mainline:

Mainline must be buried to a minimum of 48" below finish grade; this will keep the pipe from freezing.
Maximum of 5-foot depth for maintenance accessibility.

J. Brass Marker:

To be placed on the front curb, marked with a "W" for water to be stamped and installed by the contractor.

K. Compaction Tests:

All laterals - water, sewer, storm drain etc. will be tested for compaction by the developer and the results given to the Engineering Inspector with a minimum 96% modified proctor.

L. Valves:

All valves must be accessible with a standard 6' valve key, regardless of design or design change, and need to be Mueller or Clow valves or approved equal (approval must be granted in writing before constructing).

M. Water Testing Fee

All flushing of culinary water such as but not limited to new development water system testing shall be assessed a fee and the cost of water used.

N. Commercial Water Meters

If the developer/contractor requests a change in meter size after the construction drawings have been approved by the City, the request must be submitted by licensed design engineer with stamp and signature. The culinary water main tap must be same size as meter size. A new tap off the main is required if tap size is not same as meter size.

O. Manhole lids

Water vault manhole lid specifications: ASTM A 48-93, Class 35B Cast iron construction, machined flat bearing surface, removable lid with pick holes, H-20 highway load rating; lid molded with South Jordan City name and logo imprinted on lid. Provide Model A-1180 manufactured by D&L Foundry & Supply, or acceptable equal.

2. **SECONDARY IRRIGATION**

A. Pipe type

Purple Pipe, C-900 PVC, DR-18 with tracer wire and caution tape (all wire connections need a moisture resistant nut).

B. Mainline:

Must be buried to a minimum of 36" below finish grade. Compaction of 96% using a modified proctor is required. The pipe needs to be bedded in sand from 6" under the pipe to 18" above top of pipe.

C. Location:

Install at front property line in the parkstrip.

D. Blow Off:

All water line blow offs will require 2 water valve boxes, one for water valve and one for blow off riser. Riser shall be threaded, with a thread protector cap and placed 6" below finish grade.

E. Air-Vac

Placed in standard 18 inch meter box with ball valve below air-vac.

F. Brass Marker:

Placed in front curb, marked with an "I" for irrigation are to be stamped and installed by the Contractor.

G. Pressure Test:

35 pounds per square inch (P.S.I.) air tested, must be maintained for a minimum of 2 hours, and witnessed by South Jordan City Water Department. If water is being used, follow hydrostatic testing standards and notify South Jordan City Water Department 48 hours in advance

H. Valves.

All valves must be accessible with a standard 6' valve key, regardless of design or design change, and need to be Mueller type valve.

*** Thrust Blocks (Culinary & Secondary lines)**

Before pouring any thrust blocks, contractor shall give engineering inspector 24 hour prior notice.

3. **STORM DRAIN**

A. Pipe type

Shall be minimum 18" RCP Class III or HDPE in all Public R-O-W. Private systems can use HDPE pipe.

B. Backfill (RCP):

A City specified material (A-1-a to A-2-7 under AASHTO Soil Classification system) will be used for trench backfill. Place 1" minus gravel 6 inches under pipe and up to spring line (no squeegee or chips). Tamp underneath the haunches to prevent settlement. Compaction of 96% modified proctor is required.

C. Backfill (HDPE):

Backfill in the trench zone shall meet the requirements of AASHTO M145 A-1-a to A-2-7 and be a 2" maximum granular material. Stable and uniform bedding shall be provided for the pipe. The middle of the bedding equal to 1/3rd of the pipe O.D. may be loosely placed, while the remainder shall be compacted to a minimum 96% of maximum density (Modified Proctor). A minimum of 4" of 3/4" minus gravel shall be provided prior to placement of the pipe, unless an unyielding material (rock cuts) is present in the trench bottom, then a 6" cushion of bedding is recommended. Bedding shall be placed in layers of 8" loose lift thickness and brought up evenly and simultaneously on both sides of the pipe to an elevation not less than one foot (1') above the top of the pipe. Backfill shall be compacted to a minimum compaction level of 96% Density (Modified Proctor)..

D. Boxes:

Grout Boxes inside and out, and strip the forms from inside and outside of the boxes. Clean all dirt, rocks and debris from inside of the boxes. If using a pre-cast box, make sure to form a 6" collar around the outside of box with soil below pipe dug down and formed, and poured with concrete to engineering inspectors discretion. Before pouring concrete collar, contractor shall give engineering inspector 24 hour prior notice.

Inlet boxes must be a standard 48" grates (APWA plan #309). Hooded grates are not allowed due to debris accumulating in the storm drain.

E. Manholes:

Keep the Manhole collar and cover down 1/4" minimum and 1/2" maximum below finish asphalt grade. This will allow snowplows to pass over the top without hitting or damaging them, in the winter months.

F. Manhole lids:

Storm Drain manhole lid specifications: ASTM A 48-93, Class 35B Cast iron construction, machined flat bearing surface, removable lid with pick holes, H-20 highway load rating; lid molded with South Jordan City name and logo imprinted on lid; Provide Model A-1180 manufactured by D & L Foundry & Supply, or acceptable equal.

G. Storm Drain Inspection

All storm drain lines must be inspected via video or television camera after road base has been placed and before asphalt is laid. HDPE and RCP lines will be re-inspected via video or television camera prior to final bond release. All storm drain infrastructure shall be cleaned by Developer prior to City performing the work. Any damaged pipe sections shall be repaired or replaced before final bond release.

H. Storm Drain Markers

Developments must provide theft-resistant permanent installation of a City-approved storm drain marker at each storm water inlet. The marker item number is SD-SP, a stainless steel, painted blue, matte finish, embossed, fish symbol, optional serialization, 30 year warranty, with 1/4" square hole made by Almetek Industries, Inc. Installation requires drive rivet and approved adhesive. Lettering on the marker as appropriately follows:

"Only Rain in the Drain" markers installed anywhere storm water discharges to a retention or detention pond. (See standard drawings for detail.)

I. UPDES

A UPDES (Utah Pollutant Discharge Elimination System) permit is required for all construction activities 1 acre or more.

J. Utilities

All utilities including gas, phone, and cable in roadways must be installed prior to pavement construction.

4. CONCRETE

A. Curb:

High back Curb will only be allowed! If slip forming, an expansion joint is required every 300 feet and at point of curvature (PC) and point of tangency (PT). If hand forming, expansion is required at PC and PT, and every 100'. Expansion joints are required every 30' to 40' on a curve. Road base under the curb and gutter must be at least 8" thick and compacted to 96% of maximum density. A 6.5 bag mix will be used along with a coating of white pigment curing compound. A 7.5 bag mix must be used (at engineering inspectors discretion), when nighttime temperatures start to approach freezing. At the handicap ramp where it butts up against the road, there will be a 6' portion of no lip and a 6' wing from the no lip to match the high back curb elevation. There will be no ponding allowed. Before placement of asphalt, a flow test must be performed at engineering inspectors discretion. Sections that do not flow, or where ponding occurs, will be removed and replaced

On all Construction sites contractor must notify engineering inspector 24 hours prior to pouring any concrete and verify proper location.

B. Sidewalk

Compact subgrade to 96% of maximum density. 6" of base, compacted to 96% of maximum density is required. Concrete thickness will be 5". Sidewalk will be scored to depth of between 1/2" to 3/4" deep every 6' for a 6' wide sidewalk, or score lines shall be placed at intervals equal to the width of the sidewalk. An expansion joint will be placed in the sidewalk at 40-foot intervals. If sidewalk borders curb it must comply with handicap standards of 1 foot to 12 feet maximum fall on all approaches and handicap accesses. All handicap ramps require an ADA approved truncated dome insert. These shall be 4' x 2' and dark grey in color.

5. STREETS

- A. The South Jordan City Construction Standards and Specifications provide a comprehensive set of design procedures based on the recommendations found in the 1993 version of the "AASHTO Guide for Design of Pavement Structures" and on recommendations found in the November 1998 version of the "UDOT

Pavement Design Manual". All roads in the City, as determined by the City Engineer, must be designed using these empirical methods.

- B. The design professional shall perform an adequate design for the pavement section and affix their stamp and signature indicating they have performed the design in accordance with City standards, and it is adequate to provide the intended service life. Assumptions and studies used in the design parameters are the sole responsibility of the design professional preparing the pavement design.

The pavement section shall follow the construction drawings approved by the City Engineer, and the South Jordan City Construction Standards and Specifications. Paving asphalt binder grade shall be PG 64-22 unless otherwise approved by the City Engineer.

The following values are the City of South Jordan's minimum thicknesses for surface and base layers. These values are not a substitute for a professionally prepared roadway structural section design but are used as a starting point in the design process.

Table 7.3: Asphalt Concrete Pavement Minimum Structural Section
(taken from Construction Standards and Specifications)

Subgrade Class	Pavement Section	Roadway Classification	
		Local	Minor Collector
Very Poor (CBR <3)	Asphalt Concrete Surface	3.5"	4"
	Untreated Base Course	10"	8"
	Granular Backfill Borrow	*	12"
	Non-Woven Geotextile Required	Yes	No
Poor (CBR 4-9)	Asphalt Concrete Surface	3"	4"
	Untreated Base Course	9"	14"
	Granular Backfill Borrow	*	*
	Non-Woven Geotextile Required	Yes (If CBR is 4 or less)	Yes (If CBR is 4 or less)
Medium (CBR 10 or more)	Asphalt Concrete Surface	3"	4"
	Untreated Base Course	8"	10"
	Granular Backfill Borrow	*	*
	Non-Woven Geotextile Required	No	No
* Additional depth may be needed if the subgrade has a high frost hazard potential.			

C. TESTING OF MATERIALS

A deflection test must be performed on the subgrade before geotextile or base material is placed. Any soft or pumping areas must be removed and replaced with granular borrow at the City Engineer's judgment. Density tests of the subbase and asphalt material must be performed in accordance with APWA specifications. Final proof roll of road base must be performed by Developer and witnessed by Developer's Geotechnical Engineering Consultant and City Inspector. Developer's Geotechnical Engineer must analyze and recommend stabilization of any subbase material. Asphalt placement between October 15th and March 15th must have City Engineer's approval.

- Asphalt Pavement Tolerances -
Reference Table 4 – Roughness Tolerance of Section 3.6 of Asphalt Paving 32 12 16 of the APWA 2007 Manual of Standard Specifications

6. PUNCH LIST ITEMS (STREETS DIVISION)

- Sidewalks and Curb & Gutter shall be replaced if there is more than a 1/2 inch settlement or heave in a 4 inch section.
- Sections with Concrete Spalding shall be replaced. Sections shall be replaced from cold joint to cold joint

3. Sections with Concrete Chips more than ½ inch deep and 3 inches across shall be replaced as follows:
 - a. 0 – ½ inch deep and 0 – 3 inches across use seca flex 123
 - b. 3 or more chips shall be replaced. The entire section from cold joint to cold joint shall be replaced.
4. Cracks in concrete other than brake lines shall be replaced.
5. Trip Hazards:
 - a. More than ¼ inch vertical hazard shall be replaced.
 - b. ¼ inch expansion joint vertical hazard shall be cut down.
6. Wheel Chair Ramps
 - a. Brake lines shall be no more than 4 feet apart (lateral and longitude).
 - b. Truncated domes must be installed to meet ADA and/or South Jordan City Standard Specifications.
 - c. The maximum gap between the ramp and sidewalk and curb & gutter shall be no larger than ½ inch.
7. Concrete rings around manholes and valves shall be ½ inch below the final asphalt elevation.
8. All sidewalks and Curb & Gutter shall be completely backfilled to within 3 inches of the Top Back of Curb (TBC) and within 3 inches of the top of sidewalk.
9. Concrete and asphalt must make a complete marriage per APWA specifications.
10. Storm Drains:
 - a. All debris, including framing, shall be cleaned out in storm drains and manholes.
 - b. All grouping of storm drains and manholes shall make a complete marriage.
 - c. All lids and grates shall be easily removed.
11. Asphalt:
 - a. Marriages of asphalt shall be vertical, with complete marriage and with no gaps. Marriage will be cracked sealed and not be more that 1/2 inch higher than existing asphalt and/or concrete.
12. Pot Holes:
 - a. Any potholes and cracks shall be cut out to the satisfaction and discretion of the Operations Director and City Engineer or their designee and patched and crack sealed.
13. Any damage caused by any machinery or equipment shall be repaired or replaced to the satisfaction of the Operations Director and City Engineer or their designee.

7. **STREET SIGNS**

The City of South Jordan Engineering Department approves placement and design of all signs. Developer is responsible for installation of his own signs. Sign components such as sheeting, EC film, letters and boards are all required to be from the same manufacturer and must follow South Jordan City standards. Blades to be 9" x 36" with 6" upper case lettering for a name, and 3" lettering for coordinate. All signs larger than 36" x 36" or 1296 square inches per sign pole shall be mounted on a slip base system per UDOT standard drawing SN 10B with a "Z" bar backing.

8. **PARKSTRIPS (Collector Streets Only)**

The City of South Jordan Parks Department approves installation and acceptance of all parkstrips. Before installation, the Developer/Contractor must submit irrigation plans and parkstrip improvements to the city engineering department. A 90% inspection will be performed when all work is completed, and a Final

inspection will be required when the 1-year maintenance/guarantee period is complete. 90% and 100% Inspections for punch lists from October 15 – April 15 may be dependant upon weather.

9. **FENCING**

Collector street fencing must meet the current city ordinances and if fence exceeds 6' developer/contractor shall obtain SJC building permit. If wrought iron is used, spacing of steel pickets must be 4" on center. Cross section must be shown on engineering plans.

10. **DUST CONTROL/ CLEAN PAVEMENT**

Water truck must be on site if necessary, to prevent excess dust from blowing. It is the developer's responsibility to control any dust that has been introduced from grubbing/construction. Do not grub an area, if you cannot control the dust.

Keep excessive mud/ dirt off the roads. Contractor is responsible for cleaning any Public Roads, which have become dirty from vehicles, entering and leaving construction site.

11. **CLEAR ZONE**

A 30' snow zone must be allowed for at the end of all cul-de-sacs. No approaches, mailboxes, fire hydrants or transformers will be allowed. Streetlights can be placed in the clear zone.

12. **PROPERTY MARKERS**

Before any excavation is started for building foundations, all property corners must be surveyed and marked. For commercial developments, contact City Engineering Department prior to any construction of onsite curbing and building foundations to verify setback compliance.

13. **BOND RELEASES**

All bond release requests must be submitted in writing to the City of South Jordan Engineering Department. Upon completion of each major improvement category (i.e. Water system, Road Work, Storm Drainage, etc.) the Developer may request the City to release 90% of the money from the Account. A 1-year warranty period will start once all improvements and pre-final punch lists have been completed. At the end of the warranty period there will be a final punch list that will have to be completed before the remaining 10% is released and the city accepts ownership of the improvements.

14. **CONSTRUCTION SCHEDULE**

The Contractor must provide the City of South Jordan Public Services Department with a Construction Schedule. This schedule will help the Engineering Inspectors inspect the various Construction phases, and to help insure that all requirements are being met. A traffic control plan must be submitted for approval before any work begins.

15. **WORK HOURS**

Contractor shall work South Jordan City's regular working hours of Monday through Friday 7:00 am to 4:00 pm. If Contractor permits overtime work or work on a Saturday, Sunday or any legal holiday, Contractor shall receive prior approval by City Engineer and pay The City of South Jordan Overtime Fees.

Fees: \$61.17 an hour for Inspector

\$53.00 a day for truck

Fees shall be paid on the Thursday prior to Saturday, Sunday or legal holiday requested.

Minimum 4-hours / Maximum 10-hours

CHAPTER 1

STANDARD NOTES

(Updated 12-15-12)

The South Jordan City Standard Notes are required to be included as part of all construction plans for residential or commercial development. Plans submitted by public or private entities for all other types of projects within City right-of-way, its easements or property shall reference the South Jordan City Standard Notes and Specifications.

1.1 South Jordan City General Notes

1. All work done or improvements installed within South Jordan City including but not limited to excavation, construction, roadwork and utilities shall conform to the South Jordan City Construction Standards and Specifications, City Municipal Code and the latest edition of the APWA Manual of Standard Specifications and Manual of Standard Plans, and any state or federal regulations and permit requirements of various governing bodies. The contractor is responsible to have a copy of these specifications and to know and conform to the appropriate codes, regulations, drawings, standards and specifications.
2. The existence and location of any overhead or underground utility lines, pipes, or structures shown on these plans are obtained by a research of the available records. Existing utilities are located on plans only for the convenience of the Contractor. The contractor shall bear full responsibility for the protection of utilities and the engineer bears no responsibility for utilities not shown on the plans or not in the location shown on the plans. This includes all service laterals of any kind. The Contractor shall, at his own expense, locate all underground and overhead interferences, which may affect his operation during construction and shall take all necessary precautions to avoid damage to same. The Contractor shall use extreme caution when working near overhead utilities so as to safely protect all personnel and equipment, and shall be responsible for all cost and liability in connection therewith.
3. The Contractor shall take all precautionary measures necessary to protect existing utility lines, structures, survey monuments and street improvements which are to remain in place, from damage, and all such improvements or structures damaged by the Contractor's operations shall be repaired or replaced satisfactory to the City Engineer and owning utility company at the expense of the Contractor.
4. All construction shall be as shown on these plans, any revisions shall have the prior written approval of the City Engineer.

5. Permits are required for any work in the public way. The Contractor shall secure all permits and inspections required for this construction.
6. Curb, gutter, and sidewalk, found to be unacceptable per City Standards and APWA shall be removed and replaced.
7. Contractor shall provide all necessary horizontal and vertical transitions between new construction and existing surfaces to provide for proper drainage and for ingress and egress to new construction. The extent of transitions to be as shown on plans.
8. Any survey monuments disturbed shall be replaced and adjusted per Salt Lake County Surveyors requirements.
9. All privacy walls, new or existing, are only shown on civil plans for the purpose of reviewing grading relationships; flood control and sight distance at intersections. All walls shall have a minimum 2 ft x 2 ft x 30 inch deep spot footings. Bottom of all footings on all walls shall be a minimum of 30 inches below finished grade. Walls greater than 6 feet require a separate permit and inspection by the Building Department.
10. All construction materials per APWA must be submitted and approved by the City Engineer prior to the placement of asphalt within City Right of Way.
11. Request for inspection by the City of South Jordan engineering dept. shall be made by the contractor at least 48 hours before the inspection services will be required.
12. Work in public way, once begun, shall be prosecuted to completion without delay as to provide minimum inconvenience to adjacent property owners and to the traveling public.
13. The contractor shall take all necessary and proper precautions to protect adjacent properties from any and all damage that may occur from storm water runoff and/or deposition of debris resulting from any and all work in connection with construction.
14. Power poles and/or other existing facilities not in proper location based on proposed improvements shown hereon will be relocated at no expense to the City of South Jordan. Power lines and all other aerial utilities are to be buried and poles removed as determined by the City Engineer.
15. Curb and gutter with a grade of less than four-tenths of one percent shall be constructed by forming. Each joint shall be checked for a grade prior to construction and water tested as soon as possible after construction.
16. Contractor to follow Salt Lake County Noise Ordinance Standards.

17. Contractors are responsible for all OSHA requirements on the project site.
18. Trench backfill material under pavements or surface improvements shall be clean, non-clumping, granular and flowable (2" minus A1-A4 soils are acceptable according to AASHTO 145 soil Classification System). Lime treated flowable fills, if approved, shall have a 28-day strength of 65 PSI.
19. A UPDES (Utah Pollutant Discharge Elimination System) permit is required for all construction activities as per state law as well as providing a Storm Water Pollution Prevention Plan to the City.
20. Developer is responsible for locating and repairing all underground streetlight wires, water lines, storm drain lines and irrigation lines until 90% of the bond has been released.
21. All City maintained utilities including; waterline, fire hydrants, streetlight wiring, and storm drain must be in public right of way or in recorded easements.
22. Contractor shall work South Jordan City regular working hours of Monday through Friday. If Contractor permits overtime work or work on a Saturday, Sunday or any legal holiday, Contractor shall receive prior approval by City Engineer. Contractor shall obtain all permits and pay Overtime Inspection Fee's to The City of South Jordan on the Thursday prior to the Saturday, Sunday or legal holiday requested.
23. Prior to 90% bond release, a legible as-built drawing must be submitted to the City of South Jordan stamped and signed by a professional engineer. As-builts must show all changes and actual field locations of storm drainage, waterlines, irrigation, street lighting, and power. As-builts will be held to the same standard as approved design drawings, no "redlined plans" allowed. In the absence of changes, copies of the approved drawings will be required stating "installed as per drawings". As-built drawings for new developments shall be submitted to the City in the following formats and quantities prior to the 90% bond release: 1 .dxf copy, 1 .pdf copy.
24. Filter fabric wrapped around an inlet grate is not an acceptable inlet sediment barrier. See Chapter 9 of South Jordan City Construction Standards and Specifications for details of approved storm water BMPs.
25. Asphalt paving between October 15 and April 15 is not allowed without a written exception from the Engineering Department.

1.2 City of South Jordan Traffic Notes

1. When a designated "Safe Route To School" is encroached upon by a construction work zone the safe route shall be maintained in a manner acceptable to South Jordan City and the Jordan School District.

2. If the improvements necessitate the obliteration, temporary obstruction, temporary removal or relocation of any existing traffic pavement marking, such pavement marking shall be restored or replaced with like materials to the satisfaction of the City Engineer, Public Works Director or designee.
3. The street Sign Contractor shall obtain street names and block numbering from the Planning Department prior to construction.
4. The Contractor shall be responsible for providing and installing all permanent signs shown on the plans. Street name signs shall conform in their entirety to current City Standards. All other signs shall be standard size unless otherwise specified on the plans. All sign posts shall be installed in accordance with the current City Standards.
5. All permanent traffic control devices called for hereon shall be in place and in final position prior to allowing any public traffic onto the portions of the road(s) being improved hereunder, regardless of the status of completion of paving or other off-site improvements called for per approved construction drawings unless approved by the City Engineer.
6. The Contractor shall be responsible for notifying Utah Transit Authority (UTA) if the construction interrupts or relocates a bus stop or has an adverse effect on bus service on that street to arrange for temporary relocation of stop.
7. Before any work is started in the right-of-way, the contractor shall install all advance warning signs for the construction zone. The contractor shall install temporary stop signs at all new street encroachments into existing public streets. All construction signing, barricading, and traffic delineation shall conform to the Manual of Uniform Traffic Control Devices (MUTCD) per the current edition adopted by UDOT and be approved by the City of South Jordan before construction begins.
8. All signs larger than 36" X 36" or 1296 square inches per sign pole shall be mounted on a Slip Base system per UDOT standard drawing SN 10B (detail drawing attached to standard drawings) with a "Z" bar backing. Signs of this size are not allowed to be mounted on a yielding pole.
9. Sign components such as sheeting, EC film, inks, letters and borders are all required to be from the same manufacturer. Only EC film may be used to achieve color. Vinyl EC film is not accepted.
10. All new roundabouts, crosswalks, stop bars and legends shall be installed with 90 mil preformed thermo plastic.
11. Paving asphalt binder grade shall be PG 64-22 unless otherwise approved by the City Engineer.

1.3 City of South Jordan Street Light Notes

1. All work shall be installed in accordance with the most current South Jordan City Standards and N.E.C. (National Electric Code). A street light plan showing wiring location, wiring type, voltage, power source location, conduit size and location shall be submitted to the City of South Jordan and be approved prior to construction. No deviation of streetlight, pull boxes, conduits, etc. locations shall be permitted without prior **WRITTEN APPROVAL** from the City Engineer or his/her representative.
2. Location of the Street light pole.
 - a. Shall not be installed within 5 feet of a fire hydrant. The location shall be such that it does not hinder the operation of the fire hydrant and water line operation valves.
 - b. Shall be a minimum of 5 feet from any tree, unless written approval is received from the City Engineer. Branches may need to be pruned as determined by the Engineering Inspector in the field at the time of installation.
 - c. Shall not be installed within 5 feet from the edge of any driveway.
3. Anti-seize lubricant shall be used on all cover bolts and ground box bolts.
4. All existing street lighting shall remain operational during construction.
5. Any structure such as block walls, chain link fences, retaining walls, etc. shall leave a minimum of eighteen (18) inches to the face of the street light pole on all sides.
6. All service point(s) shall be coordinated with Rocky Mountain Power and whenever possible be located near the center of the circuit. Service point(s) shall be shown on the plans with a schematic from Rocky Mountain Power. Pole locations as shown on the approved plans may be adjusted in the field by the Engineering Inspector at time of installation at no additional cost to the City.
7. It shall be required that in the absence of an existing workable circuit to attach to, that all installations shall require a new service for operation of the circuits in this case developer and or his engineer shall contact Rocky Mountain Power.
8. Wherever there is an overhead utility that may conflict with the installation of the street light circuits and/or streetlight poles, those conflicts must be resolved between the developer and the utilities involved before the street light bases are constructed at no expense to the City of South Jordan or Rocky Mountain Power. The resolution must be approved by the City of South Jordan and Rocky Mountain Power.

9. The contractor shall furnish a complete service to the transformers and control systems if required on the plans and/or is deemed necessary by Rocky Mountain Power and/or South Jordan City.
10. A street light plan showing wiring location, wiring type, voltage, power source location, conduit size and location shall be submitted to the City of South Jordan and be approved prior to construction.
11. The contractor shall be required to perform a 10 day burn test of the street lights after they are connected and energized by Rocky Mountain Power. This test shall be coordinated and witnessed by a South Jordan Engineering Inspector.
12. Each streetlight shall have its own photo cell independent of a master control.

1.4 City of South Jordan Grading Notes

1. In the event that any unforeseen conditions not covered by these notes are encountered during grading operations, the Owner and City Engineer shall be immediately notified for direction.
2. It shall be the responsibility of the Contractor to perform all necessary cuts and fills within the limits of this project and the related off-site work, so as to generate the desired subgrade, finish grades and slopes shown.
3. Contractor shall take full responsibility for all excavation. Adequate shoring shall be designed and provided by the Contractor to prevent undermining of any adjacent features or facilities and/or caving of the excavation.
4. The Contractor is warned that an earthwork balance was not necessarily the intent of this project. Any additional material required or leftover material following earthwork operations becomes the responsibility of the Contractor.
5. Contractor shall grade to the lines and elevations shown on the plans within the following horizontal and vertical tolerances and degrees of compaction, in the areas indicated:

	Horizontal	Vertical	Compaction
a. Pavement Area Subgrade	0.1'+	+0.0' to -0.1'	See soils Report
b. Engineered Fill	0.5'+	+0.1' to -0.1'	See Soils Report

Compaction Testing will be performed by the developer or his representative.

6. All cut and fill slopes shall be protected until effective erosion control has been established.

7. The use of potable water without a special permit for building or construction purposes including consolidation of backfill or dust control is prohibited. The Contractor shall obtain all necessary permits for construction water from the Public Works Department.
8. The Contractor shall maintain the streets, sidewalks and all other public right-of-way in a clean, safe and usable condition. All spills of soil, rock or construction debris shall be promptly removed from the publicly owned property during construction and upon completion of the project. All adjacent property, private or public shall be maintained in a clean, safe and usable condition.
9. In the event that any temporary construction item is required that is not shown on these drawings, the Developer agrees to provide and install such item at his own expense and at the direction of the City Engineer. Temporary construction includes ditches, berms, road signs and barricades, etc.
10. All grading work shall conform to the soils report as prepared by the Soils Engineer and approved by the City Engineer, and as shown on these plans.

1.5 City of South Jordan Fire Department Notes

1. On any new home or building installation, accessible fire hydrants shall be installed before combustible construction commences and said fire hydrants shall be in good working order with an adequate water supply.
2. Contractor shall call the Public Works Department and Engineering Inspector for underground inspection, pressure and flush verification of all fire hydrants and fire lines before back filling.
3. Painting of the curbs and hydrant and any work necessary for protection of hydrants from physical damage shall be approved before being constructed.
4. A flow test must be witnessed by the Fire Department prior to occupancy for verification of required on-site water supply.
5. All on-site fire main materials must be U.L. listed and A.W.W.A. approved.
6. The turning radius for any fire apparatus access road and/or fire lane, public or private, shall be not less than forty-five feet (45') outside radius and twenty-two feet (22') inside radius and shall be paved.
7. A fire apparatus road shall be required when any portion of an exterior wall of the first story is located more than one-hundred fifty feet (150') from Fire Department vehicle access roads and/or fire lanes, public or private, in excess of one-hundred fifty feet (150') in length shall be provided with an approved turn around area.

8. Access roads shall be marked by placing approved signs at the start of the designated fire lane, one sign at the end of the fire lane and width signs at intervals of one-hundred feet (100') along all designated fire lanes. Signs to be placed on both sides of an access roadway if needed to prevent parking on either side. Signs shall be installed at least 5', measured from the bottom edge of the sign to the near edge of pavement. Where parking or pedestrian movements occur, the clearance to the bottom of the sign shall be at least 7'. The curb along or on the pavement or cement if curb is not present, shall be painted with red weather resistant paint in addition to the signs.
9. Electrically controlled access gates shall be provided with an approved emergency vehicle detector/receiver system. Said system shall be installed in accordance with the South Jordan City F.D. approval. Gates are only allowed with prior approval.
10. All underground fire lines that service automatic fire sprinkler systems shall be no smaller than six (6) inches in diameter. All fire lines material shall be Ductile Iron. (Ductile Iron from the PIV to the building shall be permitted or Ductile Iron from the main water line to the WIV).
11. Post Indicator Valves (PIV) shall be between 6 and 40 feet from buildings not exceeding three stories or equivalent in height and between 30 and 40 feet on buildings in excess of three or more stories in height or equivalent.
12. Roads and accesses shall be designed and maintained to support the imposed loads of fire apparatus. Surface shall be paved before the application of combustible material.

1.6 South Jordan City Water Notes

1. The following South Jordan City Water Notes are intended for general water standards only and are not all inclusive. The City has included the Culinary Water Design and Construction Standards within the City Construction Standards and Specifications.
2. No work shall begin until the water plans have been released for construction by the Engineering Department. Following water plan approval, forty-eight (48) hour notice shall be given to the Engineering Inspector and the Public Works Department (253- 5230) prior to the start of construction. Notice must be given by 2:00 P.M. the business day prior to an inspection.
3. All work within South Jordan City shall conform to South Jordan City Standards and Specifications, AWWA and APWA.
4. For Residential Developments - The developer shall purchase and install meter boxes and setters according to City Standards on newly developed lots and real

property at the time of water main installation. Water meters will be supplied and installed by the South Jordan Public Works Department (at Developer's expense). The developer shall also provide the site address, lot number, meter size and pay meter fees prior to building permit approval.

5. For Commercial and Condominium Developments - The developer shall purchase and install meter boxes and setters according to City Standards. Water meters will be supplied by South Jordan Public Works Department (at Developer's expense) and installed by Developer.
6. All water facilities shall be filled, disinfected, pressure tested, flushed, filled and an acceptable water sample obtained prior to commissioning the new water line to the South Jordan City Culinary Water Distribution System.
7. South Jordan Public Works Department must approve water shut down which may require evening and weekend shut down as deemed necessary, requiring the contractor to be billed for overtime. 48 hour notice is required.
8. Water stub-out installations will not be construed as a commitment for water service.
9. Conditional Approval of Valved Outlet (6" and Larger):
In the event the water plans show one or more valved outlets extending out of paved areas, installations of these outlets is acceptable, however, if the outlets are incorrectly located or not used for any reason when the property is developed, the developer shall abandon the outlets at the connection to the active main in accordance with the city standards and at the developer's expense.
10. All lines to be pressure tested according to South Jordan City and AWWA standards and chlorinated prior to use and final acceptance.
11. All fittings to be coated with poly fm grease and wrapped with 8-mil thick polyethylene.
12. No other utility lines may be placed in the same trench with water line unless approved by the City Engineer.
13. Any conflict with existing utilities shall be immediately called to the attention of the City Engineer or designee.
14. All water vaults will be constructed per City of South Jordan standard drawings and specifications. No vaults are allowed in traffic areas without prior approval of the City Engineer.
15. Landscaping and irrigation adjacent to vaults shall drain away from vaults.

16. Once the waterline has been tested, approved and city water is flowing through the pipe, only City personnel are authorized to shut down and charge the waterline.
17. Megalug following ring or an approved equivalent shall be used on all fittings.
18. APWA plan 562, City requires stainless steel tie-down restraints with turnbuckles only. 5/8" rebar is not acceptable. Megalug followers required on all fittings and all dimensions of thrust blocking still apply. Thrust blocks may be eliminated if horizontal tie down restraints have been pre-engineered and receive prior City approval.