



CITY COUNCIL AGENDA

PUBLIC NOTICE is hereby given that the City Council of Spanish Fork, Utah, will hold a regular public meeting in the Council Chambers in the City Office Building, **40 South Main Street**, Spanish Fork, Utah, commencing at **6:00 p.m. on August 16, 2011.**

AGENDA ITEMS:

1. CALL TO ORDER, PLEDGE, OPENING CEREMONY, RECOGNITIONS:

- a. Pledge, led by invitation

2. PUBLIC COMMENTS:

Please note: In order to be considerate of everyone attending the meeting and to more closely follow the published agenda times, public comment will be limited to three minutes per person. A spokesperson who has been asked by a group to summarize their concerns will be allowed five minutes to speak. Comments which cannot be made within these limits should be submitted in writing. The Mayor or Council may restrict the comments beyond these guidelines.

3. COUNCIL COMMENTS:

4. SPANISH FORK 101: John Bowcut

5. PUBLIC HEARING:

- a. * [August 2011 Construction and Development Standards Revision](#)

6. CONSENT ITEMS:

These items are considered by the City Council to be routine and will be enacted by a single motion. If discussion is desired on any particular consent item, that item may be removed from the consent agenda and considered separately.

- a. * [Minutes of Spanish Fork City Council Meeting – August 2, 2011](#)
- b. * [Master Agreement for Professional Services, Horrocks Engineering](#)
- c. * [Agreement for Professional Services, LEI Engineering](#)
- d. * [Spanish Fork River Connector Trail, Task Order 1A](#)
- e. * [2011 Sanitary Sewer and Waterline Replacement Project, Change Order #1](#)

7. NEW BUSINESS:

- a. Board Appointments
- b. * [Ordinance #12-11 Amending the City Code Addressing The City Seal and Various Election Issues](#)
- c. Presentation on UDOT Projects - Shane Marshall
- d. * [1000 North Main Street Traffic Analysis and Signal Design, Task Order A](#)

8. CLOSED SESSION:

- * Supporting documentation is available on the City's website www.spanishfork.org

Notice is hereby given that:

- In the event of an absence of a quorum, agenda items will be continued to the next regularly scheduled meeting.
- By motion of the Spanish Fork City Council, pursuant to Title 52, Chapter 4 of the Utah Code, the City Council may vote to hold a closed meeting for any of the purposes identified in that Chapter.
- This agenda is also available on the City's webpage at www.spanishfork.org

SPANISH FORK CITY does not discriminate on the basis of race, color, national origin, sex, religion, age or disability in the employment or the provision of services. The public is invited to participate in all Spanish Fork City Council Meetings located at 40 South Main St. If you need special accommodation to participate in the meeting, please contact the City Manager's Office at 804-4530.

a. Potential Litigation

ADJOURN:



Memo

To: Mayor and City Council
From: Chris Thompson, Public Works Director/City Engineer
Date: August 11, 2011
Re: August 2011 Construction Standards Revision

STAFF REPORT

City staff has been working for some time to update our current city construction standards adopted in June 2005. These standards have been reviewed and approved by the city Development Review Committee and Planning Commission with appropriate changes made after each review.

Major changes include: changes to the street cross sections, allowing HDPE pipe in water laterals, not allowing sumps, updates to the pedestrian ramp standard to meet current ADA regulations and use cast iron plates instead of pavers, requiring sewer clean outs at property line, storm drain trunklines shall be a minimum 15 inch RCP, replacing the requirement for a 1 inch overlay one year after a street is constructed with a seal coat, clarifying driveway offset requirements and integration of the most up to date Utah Chapter APWA standards.

We recommend that the city council approve these proposed changes to the construction standards.

Attached: revision





40 South Main Street
Spanish Fork City, Utah 84660
(801) 804-4550

CONSTRUCTION STANDARDS

[Proposed August 2011]

POLICY 39. CONSTRUCTION AND DEVELOPMENT STANDARDS

Chapter 39.01.	General Provisions.
Chapter 39.05.	Preliminary Plat.
Chapter 39.10.	Final Plat.
Chapter 39.15.	Site Plans.
Chapter 39.20.	Improvement and Design Requirements.
Chapter 39.25.	Inspection and Testing.
Chapter 39.30.	Contractor Requirements.
Chapter 39.35.	Earthwork and Trenches.
Chapter 39.40.	Culinary Water.
Chapter 39.45.	Pressurized Irrigation.
Chapter 39.50.	Sanitary Sewer.
Chapter 39.55.	Storm, Land and Groundwater Drains.
Chapter 39.60.	Streets and Pavements.
Chapter 39.65.	Portland Cement Concrete Work.
Chapter 39.70.	Electrical Service.
Chapter 39.75.	Communication Service.
Chapter 39.80.	Hillside Site Development.
Chapter 39.85.	Surface Irrigation Systems.
Chapter 39.90.	Landscaping.
Chapter 39.95.	Irrigation Sprinkler Systems.

Chapter 39.01. General Provisions.

39.01.010. Improvement Requirements.

- A. General.
- B. Improvements Made Before Recording.
- C. Variations, Substitutions, Exceptions and Changes.
- D. Protection of Existing Improvements.
- E. Maintaining Existing Road Surfaces.
- F. New Materials.
- G. City Furnished Products
- H. Product Delivery and Handling.
- I. Product Storage and Protection.
- J. Building Permits.
- K. Other Specifications and Standards.

39.01.020. Definitions.

39.01.010. Improvement Requirements.

A. General. This policy defines the general requirements for improvements to be built by the Developer, sub-divider, owner, or Contractor for all types of construction, (to include residential, commercial, industrial, institutional, governmental and professional office). All improvements which are in areas that are or will become public rights-of-way and/or easements, or that will be under the responsibility of a homeowners association shall meet the requirements of these specifications.

The improvements shall include all street improvements in front of all lots and along all dedicated streets to a connection with existing improvements of the same kind and to the boundaries of the development. Layout must provide for future extension to adjacent development and to be compatible with the contour of the ground for proper drainage. All culinary water, sanitary sewer, pressurized irrigation, electric, communication, storm, land or groundwater drains and any other buried utilities or conduits shall be installed to the boundary lines of the Subdivision or development.

B. Improvements Made Before Recording. No improvements shall be constructed until the right of way dedications or easements in which these improvements shall be made are recorded, the final plat, if applicable, is recorded, all inspection fees are paid, and required bonding is submitted.

C. Variations, Substitutions, Exceptions and Changes. Any variation, substitution or exception from the standards in this policy must be authorized in writing by the City Engineer or his/her designee. Product options and substitutions must meet the requirements of APWA ~~01630~~ **01 25 00 (Product Options and Substitutions)**. Any item of construction not covered in these standards must have plans and specifications approved by the City Engineer or his/her designee.

Requests for changes to the Construction standards shall be made in writing to the City Engineer. These request will be reviewed during revision process conducted in conjunction with the APWA revisions.

D. Protection of Existing Improvements. The Contractor shall be responsible for the protection of any existing improvements on public or private property at the start of work or placed there during the progress of the work. Existing improvements shall include but are not limited to permanent surfacing, curbs, ditches, driveways, culverts, fences, walls and landscaping. Any surface improvements damaged as a result of construction shall be restored or replaced to an equal or better condition then before. This shall be accomplished in a timely manner.

E. Maintaining Existing Road Surfaces. The Contractor shall be responsible for maintaining existing road surfaces suitable for travel by the public. The Contractor shall be responsible for all dust and mud control and all claims and damages resulting from failure to maintain the construction area.

F. New Materials. Only new materials may be used during construction unless otherwise authorized by the City Engineer or his/her designee.

G. City Furnished Products. If the City furnishes any products the Contractor shall conform to requirements and specifications of ~~APWA 01640~~ **APWA 01 64 00 (Owner-furnished Products)**.

H. Product Delivery and Handling. The Contractor shall conform to requirements and specifications of ~~APWA~~

01650 for product delivery and handling **APWA 01 65 00 (Product Delivery and Handling).**

I. Product Storage and Protection. The Contractor shall conform to requirements and specifications of ~~APWA 01660 for product storage and protection.~~ **APWA 01 66 00 (Product Storage and Protection).**

J. Building Permits. The City may issue a building permit upon application, in compliance with all laws, ordinances, rules, and regulations. No building permit will be issued until all the improvements are installed, accepted, and in service for the entire plat.

When asphalt pavement plants are closed for the winter, building permits may be issued before paving if there is six inches of compacted road base in all areas to be paved.

The City Engineer or his/her designee is hereby designated as the responsible official to accept the improvements.

K. Other Specifications and Standards. City standards and ordinances shall supercede all other Standards whenever they conflict.

39.01.020. Definitions.

AASHTO. *The American Association of State Highway and Transportation Officials, is a standards setting body which publishes specifications, test protocols and guidelines which are used in highway design and construction throughout the United States.*

APWA. The Utah Chapter, American Public Works Association Manual of Standard Specifications, ~~2002~~ **2007** Edition. These standard specifications can be viewed on-line at <http://www.apwa.utah.usu.edu/> **http://utah.apwa.net/**. When sections of the APWA manual are referred to in these standards, the Contractor shall also adhere to the requirements and specifications of all related sections referred to by the section of the APWA manual.

AWWA. The American Water Works Association Standards, April 2002 Edition.

City. The City of Spanish Fork, Utah.

City Engineer. The person appointed by the City to be the City Engineer.

City Planner. The person appointed by the City to be the City Planner.

Civil Engineer. A person ~~registered~~ **licensed** with the State of Utah to practice as a professional engineer.

County. Utah County, Utah.

General Plan. The general plan document as approved by the city council.

Construction Plans. Construction plans include drawings showing all required improvements for a development showing their location, size, grade, and elevations.

Customer. ~~Consumer.~~ A person or company receiving service from any City utilities.

Contractor. A person or company hired by the City or a Developer to perform construction in or for the City, having appropriate state licenses to perform said work.

Council or City Council. *The governing body of the City.*

Cul-de-sac. A permanent dead end street.

Development Review Committee. *The Development Review Committee (DRC) of Spanish Fork City.*

Developer. Person, persons, partnership or corporation developing residential, commercial or industrial property.

Energy Division. The division of City government responsible for the City owned Electric and Communication utilities.

Final Plat. An original recordable plat drawn on mylar in a form approved by the City and County, showing all lots, streets, utility easements, etc.

Flood Plain. That area designated on the most recent Flood Insurance Rate Map for the City of Spanish Fork, prepared by the Federal Emergency Management Agency, as a flood plain as amended.

Improved Lot. A lot which has all the improvements required in the Subdivisions ordinance.

Improvements. Includes roads, streets, curb, gutters, sidewalks, grading, landscaping, water and sanitary sewer systems, irrigation systems, drainage systems, power and communication systems, fences, public facilities, trees or other requirements by this chapter or by the City.

Land Surveyor. A person ~~registered~~ **licensed** with the State of Utah to practice as a licensed land surveyor.

Lot. A parcel or tract of land within a subdivision which is or may be occupied by a building or structure and the accessory buildings, structures or uses customarily incident thereto, including such open spaces as are arranged and designed to be used in connection with the building according to the zone within which the lot is located.

MUTCD. *The Manual on Uniform Traffic Control Devices defines the standards used by road managers nationwide to install and maintain traffic control devices on all public streets, highways, bikeways, and private roads open to public traffic.*

NEC. The National Electrical Code is a United States standard for the safe installation of electrical wiring and equipment.

NESC. The National Electrical Safety Code establishes rules which govern: a) methods of grounding; b) installation and maintenance of electric-supply stations and equipment, of overhead supply and communication lines, and of underground and electric supply and communication lines; and c) operation of electric-supply and communication lines and equipment.

Offsite Facilities. Facilities outside of the boundaries of the subdivision or development site which are designated and located to serve the needs of the subdivision or development or adjacent property, usually lying between a development and existing facilities.

Onsite Facilities. Facilities installed within or on the perimeter of the subdivision or development site.

OSHA. The Occupational Safety and Health Administration is the main federal agency charged with the enforcement of safety and health legislation.

Parcel of Land. A contiguous area of land in the possession or ownership of one person with one tax identification number.

Planning Commission. The Planning Commission of Spanish Fork City.

Preliminary Plat. A map or plat of a proposed subdivision or development with accompanying supplementary documents.

Public Utility Easements. The easements required to place public utilities across any privately owned property.

ROW. A public Right of Way is a strip of land that is granted, through an easement or other mechanism, for transportation purposes, such as for a trail, driveway, rail line or highway. A right-of-way is reserved for the purposes of maintenance or expansion of existing services with the right-of-way

SFCN. The Spanish Fork Community Network.

Site Plan. A plan for a commercial, industrial, institutional, governmental or planned residential development in the City.

Streets. A thoroughfare which has been dedicated and accepted by the City Council, which the City has acquired by prescriptive right or which the City owns, or is offered for dedication on an approved recorded final plat. For further explanation see the streets section.

Subdivision. Any parcel of land that is divided, re-subdivided or proposed to be divided into two or more lots, parcels, sites, units, plots, or other division of land for the purpose, whether immediate or future, for offer, sale, lease, or development either on the installment plan or upon any and all other plans, terms, and conditions. A subdivision includes (1) the division or development of land whether by deed, metes and bounds description, devise and testacea, lease, map, plat, or other recorded instrument; and (2) divisions of land for all land for all residential and nonresidential uses, including land used or to be used for commercial, agricultural, and industrial purposes.

Utilities. Includes culinary water lines; irrigation lines; sanitary sewer; storm, land and groundwater drains; gas lines; electric power lines; cable television and telephone lines; underground conduits; and junction boxes and all appurtenances to the above.

Zoning Ordinance. The comprehensive zoning

ordinance adopted by the city council as Title 17 of the Spanish Fork Municipal Code.

Chapter 39.05. Preliminary Plat.**39.05.010. Filing.**

- A. Submission.
- B. Review.

39.05.020. Form and Contents.

- A. Preliminary Plat.
- B. Master Planned Development Subdivision Packet.
- C. Soils Report.
- D. Storm Water Plan.
- E. Title Report
- F. Other Jurisdictional Approvals

39.05.010. Filing.

A. Submission. Developers should review conceptual plans with the City Planner before preparing preliminary plats. To apply for a preliminary plat, complete a preliminary plat application form. Forms are available at the City office or City website. Submit the completed form to the **Community Development Department engineering secretary** with the following:

1. Seven 24x36 inch copies of the preliminary plat drawings folded to a 9x12 inch size so the name of the subdivision is visible;
2. Two clearly legible 11x17 inch copies of the preliminary plat drawings;
3. A computer aided design (CAD) file of the plat must be submitted on a CD, or by an e-mail in an dwg or dxf format. The CAD file of the subdivision must be in the 1927 North American Datum (NAD27) or 1983 North American Datum (NAD 83) State Plane Coordinate System, Utah Central Zone, US Foot, with a tie to a section corner;
4. Payment of all the fees for preliminary plats.

If anything is submitted by e-mail the **Community Development Department engineering secretary** must be contacted for the proper e-mail address and for confirmation the e-mail was received.

B. Review. The City will review the submission and notify the Developer of any changes that must be made. Developer shall have a written response to all redlines corrected. Once these changes are made, one 24x36 inch copy, one 11x17 inch copy, CAD file and a **Portable Document Format (PDF) file** of the plat must be submitted to the **Community Development Department engineering secretary**. Ten bound subdivision packets must also be submitted for master planned developments.

All drawings, CAD files, and packets must be updated and re-submitted to the City with any changes made that were required by the Development Review Committee, Planning Commission, or City Council after each meeting.

39.05.020. Form and Contents.

A. Preliminary Plat. The preliminary plat of a subdivision shall contain the following information:

1. The proposed name of the subdivision;
2. The names and addresses of the Developer, the Civil Engineer of the subdivision, and other persons to whom notice of the hearing to be held by the City Council should be sent;
3. The names of all adjacent subdivisions and property owners;
4. The location of the subdivision as a part of some larger subdivision or tract of land referred to in the records of the county recorder. In such case, a sketch of the prospective street system of the unplatted parts of the subdivider's land shall be submitted and the street system of the part submitted shall be considered in light of existing master street plans or other Planning Commission street studies;
5. A tie to a section corner. All horizontal data shall be based on the 1927 North American Datum (NAD27) or 1983 North American Datum (NAD 83) State Plane Coordinate System, Utah Central Zone, US Foot. Horizontal datum shall be clearly written on all plat drawings;
6. A contour map with vertical intervals not to exceed two feet. Contours shall be clearly labeled. All vertical data shall be based on the 1929 North American Vertical Datum (NAVD29) or 1988 North American Vertical Datum (NAVD 88). Vertical datum shall be written on plat; and
7. Show all existing and proposed streets, alleys, easements, watercourses including flood zone areas, irrigation ditches, fence lines, utilities, buildings, public areas and any other important features within 200 feet of the tract to be subdivided;
8. Phasing plan showing how proposed development will function until the subdivision is completed;
9. A table including: total acreage of area proposed for development, total acreage in lots, total acreage in open space, percent of open space, total number of lots, density in lots per acre, and flood zone;
10. The date of preparation, a standard engineering scale of not more than 100 feet to the inch, a north arrow, and a vicinity map; and
11. A stamp and signature of a Civil Engineer licensed in the state of Utah.

B. Master Planned Development Subdivision Packet. The subdivision packet shall include a project overview, plat drawings, product elevations, landscape plan, description and design of amenities, CC&R's, and soil reports. The description and design of amenities shall

include detailed drawings and pictures of proposed playgrounds, open space, trails, streetscapes, architectural variety, fencing, and any other items deemed necessary by the City Planner.

C. Soils Report. The Developer must provide a detailed soils report addressing the following issues for the subdivision: hill stabilization, road design including CBR of existing soils, foundation design, groundwater impacts, and general soil stability. Report must be stamped and signed by a Civil Engineer licensed in the state of Utah.

Whenever the soils report for a development requires foundation drains, a storm drain system with laterals to each foundation drain must be installed. Storm drain system must be at a lower elevation than the sewer system.

D. Storm Water Plan. The Developer must provide a detailed storm water plan for the subdivision **according to the Storm Water Drainage Design manual**. This plan shall include all calculations showing that it meets all the requirements of the **Construction and Development Standards, and the Drainage Design manual**. Plan and calculations required by Chapter 39.20. Improvement and Design Requirements must be stamped and signed by a Civil Engineer licensed in the state of Utah.

E. Title Report. Developer shall provide the city with a title report showing clear title for all of the properties in proposed development.

F. Other Jurisdictional Approvals. Developer shall acquire approvals from any agency or company having affected properties or utilities.

Chapter 39.10. Final Plat.**39.10.010. General.**

A. Time Limitation for Improvements.

39.10.020. Filing.

A. Submission.

B. Review.

C. Recordation.

39.10.030. Form and Contents.

A. Final Plat.

B. Construction Plans.

C. Soils Reports.

D. Storm Water Plan.

E. Site Grading Plan.

39.10.010. General.

A. Time Limitation for Completion. All improvements within subdivisions must be completed within one year of the date of pre-construction meeting. Improvements which are not completed within the time limitation imposed herein shall work a forfeiture of any bond or surety which shall have been posted by the owner or subdivider.

39.10.020. Filing.

A. Submission. To apply for a final plat, complete a final Plat application form. Forms are available at the City office or City website. Submit the completed form to the **Community Development Department engineering secretary** with five 24x36 inch copies of the final plat and construction drawings stapled and folded to a 9 x 12 inch size so the name of the subdivision and plat is visible, the final plat on top.

B. Review. The City will review the submission and notify the Developer of any changes that must be made. **Developer shall provide a written response to all redlines corrected for final plant and construction documents.** Once these changes are made submit the following:

1. One 24x36 inch **copy copies** of the final plat and construction drawings stapled and folded to a 9 x 12 inch size so the name of the subdivision and plat is visible, the final plat on top;
2. One 11x17 inch **copy copies** of the Final Plat and construction drawings;
3. A computer aided design (CAD) file **and a Portable Document Format (PDF) file** of the plat must be submitted on a CD or by e-mail in an dwg or dxf format and a pdf . The CAD file of the subdivision must be in the 1927 North American Datum (NAD27) **or 1983 North American Datum (NAD 83)** State Plane Coordinate System, Utah Central Zone, US Foot, with a tie to a section corner.

If anything is submitted by e-mail the engineering secretary must be contacted for the proper e-mail address and for confirmation the e-mail was received.

Once accepted by the Development Review Committee, four 24x36 inch copies, one clearly legible 11x17 inch **copy copies** and a CAD file of the plat must be submitted to the **Community Development Department engineering secretary**. Two 24x36 inch copies will be retained by the City, the other two 24x36 inch copies will be signed and stamped by the City and returned to the Developer. The Developer must insure that a copy of the signed and approved construction plans is on site at all times during construction.

C. Recordation. Only the City may record final plats with the county recorder. All inspection, testing and/or connection fees required by ordinance shall be paid and permits required shall be obtained prior to the recording of Final Plat.

39.10.030. Form and Contents.

A. Final Plat. The Developer must submit a mylar of the final plat to the City in a format approved by the City and the County. The Final plat of a subdivision shall contain the following:

1. A tie to a section corner and the state plane coordinates of each point. All horizontal data shall be based on the 1927 North American Datum (NAD27) **or 1983 North American Datum (NAD 83)** State Plane Coordinate System, Utah Central Zone, US Foot. Horizontal datum shall be clearly written on the plat;
2. Accurate dimensions for all lines, angles and curves used to describe boundaries, streets, alleys, easements, areas to be reserved for public use, and other important features; the lines, angles, dimensions, state plane coordinates, bearings, areas and numbers of all lots, blocks and parts reserved for any reason within the subdivision. All dimensions shall be determined by an accurate field survey which shall balance and close as required by the county;
3. All lots and blocks are to be numbered, addressed, and named in accordance with the street numbering and naming system assigned by the City Engineer;
4. A statement that "All culinary water and pressurized irrigation lines up to and including the meter, all sanitary sewer mains, all electric meters, and all electric and SFCN communication service lines up to the mast on overhead installations and to the top of the meter base for underground installations are dedicated to Spanish Fork City.";
5. Plats and signatures shall be in waterproof ink on a 24x36 inch mylar sheet. There shall be an

unencumbered margin of one and one-half inches on the left-hand side of the sheet and not less than a half inch margin around the outer three sides of the sheets. The scale shall be a standard engineering scale of no more than 100 feet to the inch;

6. A stamp and signature of a surveyor licensed in the state of Utah;
7. A statement that "All public utility easements platted hereon are in perpetuity for installation, maintenance, repair, and replacement of public utilities, sidewalks, and appurtenant parts thereof and the right to reasonable access to grantor's property for the above described purposes. The easement shall run with the real property and shall be binding upon the grantor and the grantor's successors, heirs and assigns;
8. All building permits for this subdivision shall comply with the Development Soils Report and Mass Grading Plan. Elevation certificates shall be reviewed and approved by the City Engineer or his/her designee as required;
9. The date of preparation, a standard engineering scale of not more than 100 feet to the inch, a north arrow, and a vicinity map;
10. All off site easements required to provide services or utilities to the project shall be recorded with the Utah County Recorder's office prior or in conjunction with the final plat recordation;

B. Construction Plans. A complete set of construction plans must be submitted with all Final Plats. Construction plans must conform to the standards for construction plans found in the Improvement and Design Requirements section;

C. Soils Reports. Final plat soils report shall provide a detail of lot by lot summary addressing finished floor elevation including basements. Report shall include a minimum height factor for a peak month in a wet year, and also address all Hillside Development Standards;

D. Storm Water Plan. Developer shall provide a final drainage plan and report according to the Storm Water Drainage Design Manual;

E. Mass Grading Plan. Developer shall provide a final subdivision grading plan showing each individual property. The site shall be designed to eliminate flooding or standing water on any private property;

Chapter 39.15. Site Plans.**39.15.010. General.**

A. Time Limitation for Completion.

39.15.020. Filing.

A. Submission.

B. Review.

39.15.030. Form and Contents.

A. Site Plan.

B. Construction Plans.

C. Easements and Deeds.

D. Soils Report.

E. Storm Water Plan.

F. Elevations.

G. Landscaping Plan.

H. Site Grading Plan.

I. Other Jurisdictional Approvals.

39.15.010. General.

A. Time Limitation for Completion. All City improvements required for a site plan must be completed within one year of the date of approval by the Development Review Committee.

Improvements which are not completed within the time limitation imposed herein shall work a forfeiture of any bond or surety which shall have been posted by the owner or subdivider.

39.15.020. Filing.

A. Submission. Developers should review conceptual plans with the City Planner before preparing Site plans. To apply for a Site plan, complete a Site plan application form. Forms are available at the City office or City website. Submit the completed form to the **Community Development Department engineering secretary** with **a one** 24x36 inch **copy copies** of the Site plan drawings folded to a 9x12 inch size so the name of the Site plan is visible.

B. Review. The City will review the submission and notify the Developer of any changes that must be made. **Developer shall provide a written response to all redlines corrected.** Once these changes are made submit the following:

1. One 24x36 inch **copy copies** of the final plat and construction drawings stapled and folded to a 9 x 12 inch size so the name of the subdivision and plat is visible, the final plat on top;
2. One 11x17 inch **copy copies** of the Final Plat and construction drawings;
3. A computer aided design (CAD) file **and a Portable Document Format (PDF) file** of the plat must be submitted on a CD or by e-mail in an dwg or dxf format. The CAD file of the subdivision must be in the 1927 North American Datum (NAD27) **or 1983 North American Datum (NAD 83)** State Plane Coordinate System,

Utah Central Zone, US Foot, with a tie to a section corner.

If anything is submitted by e-mail the **Community Development Department engineering secretary** must be contacted for the proper e-mail address and for confirmation the e-mail was received.

Once accepted by the Development Review Committee, four 24x36 inch copies, one clearly legible 11x17 inch copies and a CAD file of the plat must be submitted to the **Community Development Department engineering secretary**. Two 24x36 inch copies will be retained by the City, the other two 24x36 inch copies will be signed and stamped by the City and returned to the Developer. The Developer must insure that a copy of the signed and approved construction plans is on site at all times during construction.

39.15.030. Form and Contents.

A. Site plan. A Site plan shall contain the following information:

1. The proposed name of the development;
2. The names of all adjacent property owners;
3. A tie to a section corner. All horizontal data shall be based on the 1927 North American Datum (NAD27) **or 1983 North American Datum (NAD 83)** State Plane Coordinate System, Utah Central Zone, US Foot. Horizontal datum shall be clearly written on all plat drawings;
4. A statement that "All culinary water and pressurized irrigation lines up to and including the meter, all sanitary sewer mains, all electric meters, and all electric and SFCN communication service lines up to the mast on overhead installations and to the top of the meter base for underground installations are dedicated to Spanish Fork City.";
5. A contour map with vertical intervals not to exceed two feet. Contours shall be clearly labeled. All vertical data shall be based on the 1929 North American Vertical Datum (NAVD29) **or 1988 North American Vertical Datum (NAVD 88)**. Vertical datum shall be written on the plan; **and**
6. The location, areas, and principal dimension of all existing and proposed streets, alleys, easements, watercourses, **flood zone areas, irrigation ditches**, fence lines, utilities, buildings, public areas and any other important features within 200 feet of the site;
7. A table including the following:
 - a. Total area of site;
 - b. Total area of landscaping;
 - c. Total area **and dimension** of building;
 - d. Total developed and undeveloped area;
 - e. Total impervious area;

- f. Total number of parking spaces;
 - g. Total number of handicap parking spaces;
 - h. Type of building construction for the Fire Code;
 - i. Whether the building will have sprinklers inside for fire protection.
 - j. Flood Zone;
 - k. Finish floor elevation;
 - l. Type of building and occupancy per International Building Code.
8. The date of preparation, a standard engineering scale of not more than 100 feet to the inch, a north arrow, and a vicinity map;
 9. A stamp and signature of an engineer licensed in the state of Utah.

B. Construction Plans. A complete set of construction plans must be submitted with each Site Plan. Construction plans must conform to the standards for construction plans found in the Improvement and Design Requirements section.

C. Easements and Deeds. The Developer must provide the legal documents for all easements and deeds required by the City.

D. Soils Report. The Developer must provide a detailed soils report addressing the following issues for the site: hill stabilization, road design, foundation design, groundwater impacts, and general soil stability. Report must be stamped and signed by a **civil** engineer licensed in the state of Utah.

Whenever the soils report for a development requires foundation drains, a storm drain system with laterals to each foundation drain must be installed. Storm drain system must be at a lower elevation than the sewer system. **All ground drain systems shall be approved by the City Engineer. Report shall include a minimum height factor for a peak month in a wet year for the lowest buildable floor elevation.**

E. Storm Water Plan. The Developer must provide a detailed storm water plan for the subdivision **according to the storm water Drainage Design manual**. This plan shall include all calculations showing that it meets all the requirements of the ~~Construction and Development Standards~~ **and the Drainage Design manual**. Plan and calculations required by Chapter 39.20. Improvement and Design Requirements must be stamped and signed by a Civil Engineer licensed in the state of Utah.

F. Elevations. The Developer must provide a detailed elevation in color for all buildings for a Site Plan.

G. Landscaping Plan. The Developer must provide a detailed landscape plan for the entire area of a Site Plan.

H. Site Grading Plan. The Developer shall provide site grading plan with detailed elevations showing drainage of the property. Site shall be designed to eliminate drainage of water to adjacent properties. Site Grading Plan shall address soil types of material on the project site to ensure it

is suitable for growth of landscaping and adequate percolation rates are applicable to the design.

I. Other Jurisdictional Approvals. Developer shall acquire approvals from any agency or company having affected properties or utilities.

Chapter 39.20. Improvement and Design Requirements.**39.20.010. General.**

- A. Easement.
- B. Traffic Control.
- C. Survey.
- D. Temporary Controls.

39.20.020. Construction Plans.

- A. General.
- B. Plan Sheets.
- C. Electric and Communication Plans.
- D. Street, Parking Lot and Driveway Plans.
- E. Sanitary Sewer, Storm, Land and Groundwater Drain Plans.
- F. Culinary Water and Pressurized Irrigation Plans.
- G. Landscaping Plans.
- H. Irrigation Canal and Pipe Plans.

39.20.030. Street Improvements.

- A. General.
- B. Cul-de-sacs.
- C. Curbs, Gutters, and Sidewalks.
- D. Partial-Streets Widths.
- E. Driveway and Intersection Location.
- F. Parking.
- G. Reverse Frontage Lots.
- H. Temporary Turn-Arounds.
- I. Allowable Grades.
- J. Stamped Concrete.
- K. Precast Concrete or Block Walls.
- L. Pedestrian Ramps.
- M. Minimum Curve Radius.

39.20.040. Utility Improvements.

- A. General.
- B. Communication.
- C. Electric.
- D. Pressurized Irrigation.
- E. Sanitary Sewer.
- F. Storm Drain.
- G. Culinary Water.

39.20.010. General.

A. Easements. Developer shall provide easements for all utility extensions through private property. Developer shall also provide a 10 foot public utility easement along public right-of-ways or streets and along one side of all other property lines. If setbacks are less than 10 feet then public utility easements shall be the extent of the setback.

B. Traffic Control. A traffic control plan shall be submitted to the City prior to construction in or along public streets. All traffic control shall comply with ~~APWA 01555~~-**APWA 01 55 26 (Traffic Control and the MUTCD).**

C. Survey. The alignment of the side property lines for each lot in a subdivision shall be marked in the top back of curb with a lot line witness marker that meets the

requirements and specifications of ~~APWA 02895~~ **APWA 31 05 10 (Boundary Markers and Survey Monuments).** Developer shall provide survey bench marks and monuments as required by the City Engineer or his/her designee.

All property corners shall be marked with a rebar corner marker that meets the requirements and specifications of ~~APWA 02895~~-**APWA 31 05 10 (Boundary Markers and Survey Monuments).** Corners must be marked before acceptance of a subdivision's improvements by the City. These rebars must be offset 2 to 4 inches by a steel tee post four feet out of the ground on the property line alignment.

D. Temporary Controls. Temporary controls such as noise, dust, mud, surface water, ground water, pollution and erosion controls shall be made. Controls shall meet the requirements and specifications of ~~APWA 01570~~-**APWA 01 57 00 (Temporary Controls).** The pumping of groundwater across sidewalks, into gutters or into the sanitary sewer system is prohibited.

39.20.020. Construction Plans.

A. General. The following instructions are for the purpose of standardizing the preparation of construction plans to obtain uniformity in appearance, clarity, size, and style. Plans and designs shall meet the standards defined in the specifications and drawings hereinafter outlined. All drawings and/or prints shall be clear and legible and conform to good engineering and drafting room practice.

Include the following in construction plans for all developments:

1. A copy of the proposed final plat or site plan;
2. A plan view of the entire project showing all utilities, roads, and appurtenances;
3. Plan and profiles of all storm, land and groundwater drains, sanitary sewer, curb, gutter, and irrigation;
4. Detail drawings of street cross sections according to the standard drawings and other detail drawings only for items not found in the City standard drawings. Detail drawings shall be to scale and completely dimensioned and described. All items shall be designed in accordance with minimum requirements established by the City Construction and Development Standards;
5. Complete plans for all off-site work to be done in conjunction with the project;
6. A stamp and signature of a Civil Engineer licensed in the state of Utah on each plan sheet, detail drawing, and design sheet;
7. Engineer's take off quantities and cost estimate for all construction work related to the project;

B. Plan Sheets. Include the following on each plan sheet:

1. North Arrow;
2. A standard engineering scale between 1 inch equals 10 feet and 60 feet. A scale of 1 inch equals 100 feet may be used on the plan view of the entire project if necessary to fit project on one sheet;
3. Title block along right side of sheet with title of drawing in lower right corner. Include in title block:
 - a. Name of subdivision and plat or site plan;
 - b. Name of city;
 - c. Specific type of drawing (construction drawings, plan view, plan and profiles, off-site construction, detail drawings);
 - d. Name of engineer, surveyor, or firm preparing drawings;
 - e. Drawing number of total number of drawings;
4. Also include the following with profile drawings:
 - a. Vertical scale of 1 inch equals 1, 2, 3, 4, 5, or 6 feet;
 - b. Reference to the vertical datum. The 1929 or 1988 North American Vertical Datum (NAVD29 or NAVD88) shall be used for all elevation data;
 - c. Benchmark location and elevation for checking construction;
 - d. Stationing aligned from plan view with the profile view;
 - e. Existing ground, ditch, and utility lines;
 - f. A sheet index on each sheet showing profiled area in relation to the overall project.

C. Electric and Communication Plans. Construction plans must include the location of all existing poles, transformers, secondary junction boxes, sectionalizers, overhead electrical wire and overhead communication cable. After plans are updated to meet the approval of the Development Review Committee, the Developer shall submit a computer aided design (CAD) file of the plans to the Energy Division. CAD file must be in a dwg or dxf format. Thereafter the energy division will design and make available plans for the proposed electric and communication lines for the development.

D. Street, Parking Lot, and Driveway Plans. Include the following for curb, gutter, storm, land and groundwater drains, drainage structures, sidewalks, and street surfacing plans:

1. Plan and profile for top back of curb for each side of the street. Label profile line as top back of curb for both sides of street if it is the same;
2. Stationing and top back of curb elevations with curve data for curb returns;

3. Flow direction and type of cross drainage structures at intersections with adequate flow line elevations;
4. Type of curb and gutter if other than the standard two foot curb and gutter in the standard drawings;
5. Location and width of driveways if known;
6. Street cross sections with all proposed and existing utilities and base sections as per soils report and **Construction and Development Standards;**

E. Sanitary Sewer, Storm, Land and Groundwater Drain Plans. Include the following for sanitary sewer, storm, land and groundwater drain plans:

1. Plan and profile of all new and existing mains and manholes;
2. Box and manhole size, location, and elevations of flowlines and rim;
3. Location, size, grade, and type of pipe of new and existing mains;
4. Location of each lateral with distance stubbed back into property clearly drawn and dimensioned;
5. Storm water calculations for a 10, 25, and 100 year storm;
6. **Storm inlet boxes shall be located on street corners and or property lines.**

F. Culinary Water and Pressurized Irrigation Plans. Include the following for culinary water and pressurized irrigation plans:

1. Location, size, and type of pipe of new and existing water mains;
2. Location of valves, fittings, hydrants, boxes, meters, and appurtenances;
3. Minimum cover;
4. Location of each lateral with distance stubbed back into property clearly drawn and dimensioned;
5. **Culinary water shall be a maximum of 1500' or 50 connections without a complete loop system.**

G. Landscaping Plans. For landscaping that will be maintained by the City or a homeowner's association submit one copy of the landscaping plans including all irrigation system layouts, details, legends, and drawings. These project plans shall meet the requirements of the Chapter 30.90. Landscaping and Chapter 30.95. Irrigation Sprinkler Systems.

H. Irrigation Canal and Pipe Plans. Plans that affect canals or irrigation pipes must be stamped approved by those responsible for their maintenance before they will be approved by the City.

39.20.030. Street Improvements.

A. General. The Developer shall construct all streets and appurtenances required for the development as specified by the City Council in accordance with the City Construction and Development Standards and/or other codes adopted by the City. The design and all street work shall be done as directed and under the supervision of the City

Engineer or his/her designee. **No street shall serve over 50 units without a second improved access.**

B. Cul-de-sacs. The maximum length of a cul-de-sac is 400 feet measured from the nearest right-of-way line of the adjoining street to the center of the cul-de-sac, and the minimum radius of the cul-de-sac is 60 feet at the property line.

C. Curbs, Gutters and Sidewalks. Curbs, gutters, and sidewalks shall be built along all public streets according to the standard drawings. All curbs, gutters, and sidewalks shall connect to existing curbs, gutters, and sidewalks within a reasonable area as determined by the City Engineer or his/her designee.

D. Partial-Streets Widths. In certain conditions, and when special approval is given, partial road widths may be allowed. A partial road width shall include half the road plus 10 feet. The road shall also include a 2 foot shoulder along the unfinished portion of the street with a minimum 3% slope away from the edge of pavement. All City improvements must be made in dedicated City right-of-way or public utility easements. "No Parking" signs shall be installed on the opposite side of the road from the development.

E. Driveway and Intersection Location. **Driveways and street intersection locations shall be designed according to Spanish Fork City Transportation Master Plan.** No driveways ~~or streets~~ shall be constructed within the following distances from an adjoining street. These distances are from **Top Back Curb (TBC) right-of-way** to the edge of driveway for accesses: ~~and from right-of-way to right-of-way for streets and offset intersections: from to the edge of driveway for accesses~~

1. Along Local Streets:
 - 60' ~~50'~~ from an adjoining local street,
 - 100' from adjoining collector/arterial (approach),
 - 120' from adjoining collector/arterial (departure).
 - 50' from an adjoining minor collector
 - 75' from an adjoining major collector to residential drive
 - 150' from an adjoining arterial
2. ~~Along Minor Collectors:~~
 - 75' from an adjoining local street
 - 75' from an adjoining minor collector
 - 100' from an adjoining major collector
 - 150' from an adjoining arterial
3. ~~Along Major Collectors:~~
 - 100' from an adjoining local street
 - 100' from an adjoining minor collector
 - 100' from an adjoining major collector
 - 150' from an adjoining arterial
4. ~~Along Arterials:~~
 - 150' from all adjoining streets

Curb cuts shall only be allowed for driveways. Driveways shall be a minimum of 3 feet from any above grade utility box. All accesses and streets onto collectors and arterials must be approved by the City **Engineer or his/her designee.**

F. Parking. Parking shall meet the requirements of the zoning ordinance and standard drawings.

G. Reverse Frontage Lots. New residential developments shall not be designed to allow direct access from individual lots or dwelling units to ~~arterial streets or major collector streets~~: collector streets or larger.

Masonry walls shall be provided along the sides of residential developments, which have reverse or side frontage to arterial streets, collector streets or interstates. The walls will be of decorative block, brick, or similar materials together with design elements such as columns, capping, inlays, and variations in materials. The material, style, and color of the wall must be reviewed and approved by the City **Engineer or his/her designee.** The wall shall be constructed according to a design stamped by a licensed professional civil engineer and City construction standards. The City Council may waive this requirement in those instances where the height of the interstate, arterial street, or ~~major~~ collector street is significantly higher than the top of the wall. The City Council may also waive the requirement for a masonry fence if a park or open space area is adjacent to such streets. The Council may waive all fencing requirements or impose non-sight obscuring fencing, at their sole discretion.

H. Temporary Turn-Arounds. Temporary turn-arounds are to be provided on all streets which extend more than one lot from an intersection. These are to be recorded as easements. They shall be 84 feet in diameter and consist of a minimum of 8 inches of compacted road base.

I. Allowable Grades. The maximum grade allowed for any City street is 8.0% unless otherwise approved by the City **Engineer or his/her designee.** In no case shall grades greater than 12.0% be allowed. The minimum grade allowed for any City street 0.45%.

J. Stamped Concrete. The color and pattern of stamped concrete shall be approved by the Development Review Committee.

K. Precast Concrete or Block Walls. The design of all walls must be approved by the Development Review Committee. Design must be stamped and signed by ~~an~~ **a licensed professional civil** engineer registered in the state of Utah.

L. Pedestrian Ramps. Pedestrian ramps shall be placed at all corners of intersections and at all other locations of regular pedestrian traffic across roads as determined by the City **Engineer or his/her designee.** All ramps shall conform with the requirements of the Americans **with** Disabilities Act and City standards.

M. Minimum Curve Radius. ~~Minimum curve radius shall be determined by ASSHTO design standards.~~ **Horizontal and Vertical Curve. Horizontal and vertical curve**

alignments shall be determined by AASHTO Geometric Design of Highways and Streets (Greenbook) and additional ASSHTO design standards.

39.20.040. Utility Improvements.

A. General. It shall be the responsibility of the Developer to connect to existing utilities or improvements wherever they are located and extend those improvements to and through the development.

Workmanship and details of construction shall be in accordance with the City Construction and Development Standards and/or other codes adopted by the City. All work shall be done under the supervision of the City Engineer or his/her designee.

B. Communication. Communication lines shall be underground except when the City Engineer or his/her designee feels that such underground lines are not in the best interest of the City.

C. Electric. Electrical lines shall be underground except when the City Engineer or his/her designee feels that such underground lines are not in the best interest of the City. Lines shall be located opposite of water and pressurized irrigation lines.

D. Pressurized Irrigation. The Developer shall connect the development with the city pressurized irrigation system with all appurtenances and shall make such pressurized irrigation available to each lot or unit within the development. Adequacy of supply and sizes of pressurized irrigation mains shall be established by the City Engineer or his/her designee. Meter boxes shall be on the opposite corner of the lot from where the electrical boxes are located.

E. Sanitary Sewer. The Developer shall provide each lot with a sanitary sewer system in accordance with the ordinances of the City. All said work shall be done as directed and under the supervision of the City Engineer or his/her designee.

F. Storm Drain. The Developer shall provide on-site facilities according to the storm water Drainage Design manual for a 24 hour long 25 year storm event and piping and appurtenances to convey a 100 year storm event to a regional storm facility. The maximum allowable storm water discharge from any commercial and industrial development will be limited to 0.15 cfs/acre of development. A minimum size of 15" shall be used on all storm drain piping.

G. Culinary Water. The Developer shall connect the development with the culinary city water system with all appurtenances and shall make such culinary water available to each lot or unit within the development. Adequacy of supply and sizes of culinary mains shall be established by the City Engineer or his/her designee. Pipes shall be located opposite to from electrical lines. Looping of culinary water shall be required on any development that is more than 1500' or 50 connections.

Chapter 39.25. Inspection and Testing.**39.25.010. General.**

- A. Quality Assurance.
- B. Submittals.
- C. Preconstruction Meeting.
- D. Inspection and Testing Notification.
- E. Testing and Sampling.
- F. Testing Agency.
- G. Work without Required Inspection and Testing.
- H. Inspection and Testing Fees.
- I. Sub-standard Work and Pay Factors.
- J. Weekly Progress Meetings.
- K. Road Construction.
- L. As-Built Survey.
- M. Acceptance of Improvements.

39.25.020. Communication.

- A. Conduit Inspection.
- B. Service Stub Inspection.
- C. Final Communication Inspection.
- D. Bedding Inspection.

39.25.030. Earthwork.

- A. Compaction and Moisture Content Tests.
- B. Red-head Inspection.
- C. Proof Roll Inspection.
- D. Thickness Test.

39.25.040. Electric.

- A. Conduit Inspection.
- B. Service Stub Inspection.
- C. Street Light Base Inspection.
- D. Bedding Inspection.
- E. Final Electrical Inspection.

39.25.050. Landscaping and Irrigation Sprinkler Systems.

- A. Plant Material Inspection.
- B. Sprinkler System Assembly Inspection.
- C. Fall Sprinkler Winterizing Test.
- D. Spring Sprinkler Energizing Test.
- E. Final Acceptance Inspection.

39.25.060. Portland Cement Concrete Work.

- A. General.
- B. Slump, Temperature and Air Entrainment Test.
- C. Compression Test.
- D. Forms and String Line Inspection.
- E. Gutter Drainage Inspection.
- F. Thickness Test.
- G. Curing Inspection.

39.25.070. Pressurized Irrigation.

- A. General.
- B. Main Line Inspection.
- C. Pressurized Irrigation Service Inspection.
- D. Pressure Test.
- E. Leakage Test.

39.25.080. Sanitary Sewer.

- A. General.
- B. Main Line Inspection.
- C. Service Inspection.
- D. Air Pressure Test.
- E. Video Inspection.
- F. Deflection Test.

39.25.090. Storm, Land and Groundwater Drains.

- A. General.
- B. Main Line Inspection.
- C. Air Pressure Test.
- D. Video Inspection.

39.25.100. Streets.

- A. Asphalt Pavement Material Tests.
- B. Compaction Tests.
- C. Grading Inspection.
- D. Thickness Test.

39.25.110. Culinary Water.

- A. General.
- B. Main Line Inspection.
- C. Culinary Water Service Inspection.
- D. High Chlorine Test.
- E. Pressure Test.
- F. Leakage Test.
- G. Bacteria Test.

39.25.010. General.

A. Quality Assurance. The following work shall be subject to the inspection and testing requirements of this chapter:

1. Work **on** ~~in~~ existing or proposed City property;
2. Work **on** ~~in~~ property that will be owned by a property owners association;
3. Work **on** ~~in~~ existing or proposed streets, easements, or right-of-ways;
4. Work on existing or proposed City utilities.

The Contractor must ensure that all inspection and testing required by these standards is preformed and accepted by the City **Engineer or his/her designee**. The Contractor must also ensure that any additional inspection and testing required by the City or a testing company is performed and accepted by the City. In projects other than those bid out by the City the Developer is ultimately responsible for the work of the Contractor.

B. Submittals. Contractor shall turn in submittals for all testing not performed by the City.

1. *Field Test Report.* Contractor must submit original field test report immediately to City whenever possible. Reports may not be submitted later than the end of the current day.
2. *Laboratory Test Report.* Submit original report to the City within 48 hours after test results are determined.

3. Material and Equipment Specifications. Four copies of the manufacturer's specifications and manuals for equipment and materials used must be submitted to the City 7 days before the pre-construction meeting. Pre-construction meeting may not be held until material and equipment specifications are approved.

C. Preconstruction Meeting. The Contractor must schedule a preconstruction meeting with the City's engineering secretary before any work on a new development or City project may begin.

The Contractor, Developer, project engineer, and all sub-contractors must be present at the preconstruction meeting. Any sub-contractor not attending the preconstruction meeting must schedule an additional preconstruction meeting with the City before beginning work. Work must begin within 4 weeks of the preconstruction meeting or a new preconstruction meeting must be scheduled by the Contractor.

D. Inspection and Testing Notification. The City may contract with a private company to conduct any inspections or testing specified to be performed by the City. All inspections and tests must be scheduled with the City or company contracted by the City a minimum of 1 full business day before needed. Requests for inspection on work requiring continuous inspection shall be made 3 full business days prior to commencing the work.

E. Testing and Sampling. The City Engineer or City Inspector may require that sampling be performed in their presence, in which case the Developer or Contractor shall be notified of this requirement in writing at the time the building permit is issued, or at the preconstruction meeting, or when construction drawings are released by the City for construction, as applicable.

Each sample or test shall be accompanied by the following written data, which shall be reported to the City with test results:

1. Name of Project
2. Name of Developer/Contractor
3. Project Street Address
4. Appropriate Test Name
5. Date of Sampling
6. Sample Number (if more than one sample per day)
7. Name of technician who performed the testing
8. Location of sample

F. Testing Agency. All materials testing, whether in a laboratory or in the field, shall be conducted by a testing agency approved by the City **Engineer or his/her designee.**

The City will contract with an independent certified testing company for the compaction and concrete testing on improvements in the public right of way, or improvements in a **Planned Residential Development (PRD)** which would be public if not for the PRD, or improvements in common areas. The Developer shall pay a fee for this testing before

construction commences. Fees shall be based on the current contract the City has with the testing company. Additional tests and all re-tests shall require additional fees to be paid. Final acceptance of improvements shall not be issued until all additional fees are paid. The City may deduct these additional fees from the 15% cash bond paid by the Developer.

G. Work without Required Inspection and Testing. Any work performed without required inspection or testing will give the City the option to hold the bond covering that portion of the improvements in violation, or, require the removal and replacement of the un-inspected work. The City shall have the option of retaining part or all of the bond for 10 years after installation of improvements constructed without required inspection or testing. The City Engineer may also accept the work at a reduced price if the lowest pay factor is applied.

H. Inspection and Testing Fees. Inspection fees and/or connection fees required by Resolution 99-18 shall be paid and permits required shall be obtained prior to the preconstruction meeting.

I. Sub-standard Work and Pay Factors. If any inspection or test indicates that work does not meet City standards the City Engineer may require that the work be redone. If the work has a pay factor option in the standards the City Engineer may accept the work at a reduced price upon condition that the pay factors outlined in the City standards apply. Payment reduction amounts shall either be assessed to the developer as a fee based upon bond estimates for the work, or be applied against payments to Contractors for City contracts. When any work is done to a lower standard than allowed for in the pay factor tables the work shall be redone until it meets City standards.

J. Weekly Progress Meetings. All construction projects in the City will have a weekly progress meeting at the City office. The City Engineer or his/her designee, City inspectors, the Contractor, and sub-contractors shall be in attendance.

K. Road Construction. Road construction may not commence until all underground utilities are installed and pass all the inspections and tests required by these standards.

L. As-Built Survey. The Contractor shall notify the City to survey all underground utilities either installed or uncovered in the course of construction. Contractor shall give the City 24 hours notice to survey utilities.

M. Acceptance of Improvements. Inspections made by the City or a company hired by the City to determine compliance with the specifications do not imply final acceptance of the work. The City requires the completion of all facilities before any are accepted for maintenance. The following inspections must be scheduled and passed before final acceptance of any improvements:

1. End of Construction Inspection. The Contractor must schedule with the City an end of construction inspection once all the improvements in a

development or project are completed according to the Construction and Development Standards.

2. Final Acceptance Inspection. One year after the Contractor or Developer passes the end of construction inspection, he or she must schedule a final acceptance inspection. This inspection must be conducted after the 1 inch overlay and concrete rings are installed when applicable.

If the Contractor or Developer does not pass one of these inspections a punch list of work items necessary to pass the inspection will be given to the Contractor or Developer within 2 business days of the inspection. The Contractor or Developer must reschedule inspections with the City until the project or development passes the inspection.

All improvements shall be free from defects, damage, or debris at the time of these inspections. The Contractor or Developer shall not be responsible for debris or damage not caused as a result of the his or her work or quality of work.

Any faulty or defective work shall be corrected by the Contractor within 30 days of the failed inspection or according to the contract the City has with the Contractor. If the Contractor or Developer fails to do so, the City Engineer or his/her designee shall have such repairs made, and the cost of such repairs shall be paid by the Developer together with 25% in addition thereto as and for stipulated damages for such failure on the part of the Developer to make the repairs.

39.25.020. Communication.

A. Conduit Inspection. The City must inspect all conduit before backfilled.

B. Service Stub Inspection. The City must inspect all service stubs before backfilled.

C. Final Communication Inspection. Once all communication work for a development is completed to City standards a final communication inspection must be done by the City **Engineer or his/her designee**. This may be done at the same time as the final electrical inspection.

D. Bedding Inspection. The City must inspect the bedding in all communication trenches.

39.25.030. Earthwork.

A. Compaction and Moisture Content Tests. The City will test all sub-grade and fill material for compaction and moisture content. Test locations shall be determined by the City.

1. Trenches. Tests will generally be taken 1 per 200 lineal foot of trench per 8 inch lift.
2. Streets. Tests will generally be taken 3 per 200 lineal foot of street per 8 inch lift.
3. Other Cuts and Fills. Tests will generally be taken 1 per 2,000 square feet of compacted area.

B. Red-head Inspection. The project engineer must provide red-heads for all grade work when brought to within 3 inches of finish grade. The City must inspect and accept finished grading to the engineered red-heads.

C. Proof Roll Inspection. Prior to placing fill material for roadbed backfills, proof roll sub-grade using gross weight of 18,000 pounds per tandem axle, with a tire pressure at least 90 psi, unless otherwise specified by the soils report. Contractor shall proof roll under the supervision of the City according to the following conditions:

1. Passes. All proof roll passes will traverse the sub-grade parallel to the roadbed centerline. All subsequent passes will be offset half the vehicle width until the entire sub-grade is tested.
2. Mitigation. The City will analyze, determine, designate, and measure the areas, if any, requiring additional compaction or reconstruction.
3. Sub-grade Protection. Once sub-grade passes the proof rolling test, protect the surface from construction operations and traffic damage. Repair all cuts, ruts, and breaks. Keep surface in a satisfactory condition until geotextile fabric or base course has been placed.

D. Thickness Test. Material thickness tests will be conducted by the City when the City Engineer or his/her designee considers it necessary. The total depth shall be reasonably close to that shown on the typical section. Depth analysis shall be made on at least four holes for each section. Base thickness shall be accepted if 75% of the test holes are less than 1/4" below the specified thickness and no individual hole shall be more than 3/4" below the specified thickness.

39.25.040. Electric.

A. Conduit Inspection. The City **Engineer or his/her designee** must inspect all conduit before backfilled.

B. Service Stub Inspection. The City must inspect all service stubs before backfilled.

C. Street Light Base Inspection. The City must inspect all street light bases before they are backfilled around.

D. Bedding Inspection. The City must inspect the bedding in all electrical trenches.

E. Final Electrical Inspection. Once all electrical work for a development is completed to City standards a final electrical inspection must be done by the City.

39.25.050. Landscaping and Irrigation Sprinkler Systems.

A. Plant Material Inspection. All plant materials are to be inspected and approved by the City at the time of delivery on site. This approval does not constitute final acceptance of any plant material by the Spanish Fork City Parks Department Representative. All plant materials will be inspected again at time of final inspection and once again at the end of the warranty period. Any plant found to be unacceptable at any of these inspections shall be immediately removed and replaced.

B. Sprinkler System Assembly Inspection. An on-site inspection shall be conducted by the City after the entire sprinkler system is assembled and prior to backfilling the trenches. During this inspection all fittings, bends, sweeps, valves, sprinkler heads and any other appurtenance on the system shall be surveyed by the City.

C. Fall Sprinkler Winterizing Test. In the fall of the year during the installation and guarantee period, the Contractor shall meet with the City on the project site. The Contractor shall winterize the system by draining all the water and doing everything necessary to insure the protection of the system until spring. Blowing out the lines by compression shall be permitted during the 1 year guarantee. The individuals involved from both parties shall exchange all information necessary for the eventual take over of the system by the Spanish Fork City Maintenance Personnel.

D. Spring Sprinkler Energizing Test. The Contractor with the Spanish Fork City Maintenance Personnel in attendance shall energize the sprinkler irrigation system the Spring following the Fall winterizing test. Contractor shall repair all defects found as a result of Winter damage, improper installation, improper maintenance, defective materials or inadequate sprinkler drainage.

E. Final Acceptance Inspection. At the end of the guarantee period the all landscaping and irrigation sprinkler systems must then be inspected and tested by the City. As-built drawings shall be furnished to the City at the time of the final inspection.

Irrigation sprinkler systems must operate in a satisfactory manner, with a full uniform coverage of the areas that are indicated to be sprinkled. Sprinkler heads shall be adjusted to proper level.

Landscape and irrigation sprinkler systems will not be inspected for acceptance in parts. Where inspected work does not comply with requirements, Contractor shall replace rejected work and continue specified maintenance until reinspected by the City and found to be acceptable. Remove rejected plants and materials promptly from the project site.

39.25.060. Portland Cement Concrete Work.

A. General. All materials and processes involved in concrete work shall be subject to inspection and testing as detailed in the various paragraphs of this section and in general compliance with ASTM E105-54T. Results of tests performed by laboratories approved by the City to the satisfaction of the City Engineer or his/her designee shall be accepted by the supplier as a basis for acceptance or rejection of any and all materials.

The latest appropriate ASTM tests and methods shall be considered to be standard, and will include but not be limited to concrete, cement, aggregates additives, curing compounds, parting compounds and jointing materials. A copy of all batch tickets for concrete placed shall be submitted to the City.

B. Slump, Temperature and Air Entrainment Test. The City shall test slump, temperature, and air entrainment on every fifty cubic yards or less of concrete placed each day. Tests shall be taken after ½ to 1 yard has been poured from the mixer. Once a sample is taken the concrete pour shall be stopped until tests show that the concrete meets City standards. Concrete that does not meet City requirements for slump, temperature, and air entrainment shall not be used. Any that may already have been poured shall be removed before hardening.

C. Compression Test. The City shall test compression on every fifty cubic yards or less of concrete placed each day according to ASTM C143, C231, C1064, C172, and C31. Three cylinder specimens shall be taken for each test, one shall be broken at 7 days, one at 28 days and the third held for 45 days after submittal in case further testing is required.

Specimens shall attain the specified strength at 28 days. One lot is 1 day's production. A lot with sub-standard compressive strength may be accepted at reduced price if the appropriate pay factor is applied to the whole lot. The following table outlines the pay factors for sub-standard portland cement concrete strength:

PORTLAND CEMENT CONCRETE
COMPRESSIVE STRENGTH PAY FACTORS

Pay Factor	Tolerance (psi below 28 day specified strength)
0.98	1 to 100
0.94	101 to 200
0.88	201 to 300
0.80	301 to 400
0.50	401 to 600
Replace	More than 600

These pay factors may not be applied toward concrete in structures.

D. Forms and String Line Inspection. The City shall inspect all forms and string lines before concrete may be placed.

E. Gutter Drainage Inspection. The City shall inspect all gutters for drainage prior to paving. Water shall be let into all gutters and any gutters with standing water in excess of 1/4 inch after runoff shall be replaced. Contractor must supply water truck for gutter drainage inspection.

F. Thickness Test. The City shall determine the number, if any, and location of core tests necessary to ensure the proper thickness of portland cement concrete. Tests shall be taken at equal intervals in a test area. A test area shall be defined as a total area placed at the same time and by the same process. The average thickness shall then be determined from all the cores taken. Tests shall be taken and verified by a certified testing lab contracting to the City.

When the average thickness is more than 0.25 inches below the specified thickness, ~~s-~~ a minimum of 1 core per 1,500 square feet of pavement shall be taken. Work with sub-standard thickness may be accepted at reduced price if the appropriate pay factor for the lowest tested thickness is applied to all of the sub-standard work. The following table outlines the pay factors for sub-standard portland cement concrete thickness:

PORTLAND CEMENT CONCRETE
THICKNESS PAY FACTORS

Pay Factor	Tolerance (inches below specified thickness)
1.00	0.00 to 0.25
0.90	0.26 to 0.50
0.70	0.51 to 0.75
0.50	0.76 to 1.00
Replace	More than 1.00

G. Curing Inspection. The City shall inspect the curing of all portland cement concrete work within 24 hours of pouring the concrete.

39.25.070. Pressurized Irrigation.

A. General. The inspections and tests in this section are required for all pressurized irrigation construction in the City boundaries and on all construction relating to the City pressurized irrigation system outside the city boundaries.

B. Main Line Inspection. The City must inspect all pressurized irrigation main line installation on an ongoing basis. Inspection notification must be given before any construction of the main line may begin. All crosses, tees, bends, valves, and drains must be inspected and surveyed by the City before they are ~~backfilled~~ covered.

C. Pressurized Irrigation Service Inspection. The City must inspect all pressurized irrigation services before service trenches are backfilled. The City must be able to survey services at the main during the inspection.

D. Pressure Test. The Contractor must pressure test all pressurized irrigation systems, system extensions and service laterals to the setter in the presence of the City Engineer or his/her designee or have tests documented and submitted by a certified testing company approved by the City. A minimum pressure of ~~200 psi~~ 225 psi shall be maintained on the portion being tested for a minimum period of 2 hours, using either pneumatic or hydraulic means to maintain the pressure. Pressure tests must meet the requirements and specifications of ~~APWA 01815~~ APWA 33 08 00 (Commissioning of Water Utilities).

E. Leakage Test. Leakage tests shall be conducted concurrently with the pressure tests. Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe, or any valved section thereof, to maintain pressure within 5 psi of the specified test pressure after the air in the pipeline has been expelled and the pipe has been filled with water.

No pipe installation will be accepted if the leakage is greater than that determined by the following formula:

$$Q \leq 0.000106 \times L \times D \times \sqrt{P}$$

$$Q \equiv \frac{LD * \sqrt{P}}{133,200}$$

in which **Q** is the allowable leakage, in gallons per hour; **L** is the length of pipeline tested in feet; **P** is the average test pressure, in pounds per square inch (gage) and **D** is the nominal diameter of the pipe in inches. Provide 225 psi test pressure for 2 hours unless specified otherwise.

~~When testing against closed metal-seated valves, an additional leakage per closed valve of 0.0078 gallons per hour per inch of nominal valve size shall be allowed.~~

If any test of pipe laid discloses leakage greater than specified, the Contractor shall, at their own expense, locate and repair the defective material until the leakage is within the specified allowance. All visible leaks are to be repaired regardless of the amount of leakage.

39.25.080. Sanitary Sewer.

A. General. The inspections and tests in this section are required for all sanitary sewer construction in the City boundaries and on all construction relating to the City sanitary sewer system outside the city boundaries.

B. Main Line Inspection. The City must inspect all sanitary sewer main line installation on an ongoing basis. Inspection notification must be given before any construction of the main may begin.

C. Service Inspection. The City must inspect all sanitary sewer services before service trenches are backfilled. The City must be able to survey services at each end during the inspection.

D. Air Pressure Test. Contractor shall conduct a low pressure air test by the following method under the direction of the City Engineer or his/her designee with equipment equal to Cherne Industrial, Inc., or provide proof that test was conducted by a certified testing company. Sanitary sewer pipes with inside diameters of 30 inches or larger shall be leak tested according to manufacturer’s specifications.

All wyes, tees, or ends of lateral stubs shall be suitably capped and braced to withstand the internal test pressures. Caps shall be easily removable for future lateral connections or extensions. After a manhole to manhole section of line has been backfilled and cleaned, it shall be plugged at each manhole with pneumatic plugs.

Low pressure air shall be introduced into the sealed line until the internal air pressure reaches 4 psi-G greater than the average back pressure of any ground water that

may be over the pipe. At least 2 minutes shall be allowed for the air pressure to stabilize.

The portion of line being tested shall be accepted if the portion under test does not lose air at a rate greater than 0.003 cubic feet per minute per square foot of internal pipe surface of 2.0 cubic feet per minute minimum when tested at an average 3.0 psi-G greater than any back pressure exerted by ground water that may be over the pipe at the time of the test.

The pipe and joints shall also be considered acceptable when the time required in minutes for pressure to decrease from 3.5 To 2.5 psi-G (greater than the average back pressure of any ground water that may be over the pipe) shall not be less than the time shown for the given diameters in the following table:

PRESSURE REDUCTION TIME LIMITS

Pipe Diameter (inches)	Time (minutes)
4	2.0
6	3.0
8	4.0
10	5.0
12	5.5
15	7.5
18	8.5
21	10.0
24	11.5

If the installation fails to meet this requirement, the Contractor shall determine at his/her own expense the source of leakage. He shall repair or replace all defective materials and/or workmanship. All sanitary sewer mains shall be tested, cleaned and accepted by Spanish Fork City before laying the street surface.

E. Video Inspection. Contractor shall clean and then video inspect all sanitary sewer main lines prior to paving. The City must approve video inspection company.

Cleaning shall be done using a high pressure jet cleaning machine, producing a minimum of 800 psi. Waste water and debris shall not be permitted to enter the City sanitary sewer system, but shall be removed at the lowest manhole of the extension.

Video inspection shall clearly show any debris, broken pipe, misaligned pipe, displaced pipe and defective joints for all sections of the main line. All defects and their location shall be detailed on a separate video log report. A **tape digital video disk (DVD)** of video inspection and log report shall be submitted by the inspection company to the City Engineer or his/her designee.

Log reports shall be submitted on the City video form or an approved equivalent. Log reports must be submitted with a 11x17 copy of the plans. All manholes in the log report must reference the labeled manholes numbers on the plans. Each manhole must also have a street address clearly shown on the log report.

Main line determined to be defective by the City Engineer or his/her designee shall be remedied by the Contractor. Contractor shall then clean and video inspect the main lines again.

F. Deflection Test. Contractor shall perform a displacement test on all storm drain lines after video inspection. Deflections tests must be conducted in the presence of the City Engineer or his/her designee or be documented and submitted by a certified testing company approved by the City. In no case shall pipe be accepted that has a deflection of more than 5% after it has been backfilled. Mandrel must be pulled by hand or air. A pipe deflection test shall be required of the Developer/Contractor after backfilling and compaction of the trench.

39.25.090. Storm, Land and Groundwater Drains.

A. General. The inspections and tests in this section are required for all storm, land and groundwater drain construction in the City boundaries and on all construction relating to the City storm, land and groundwater drain system outside the city boundaries.

B. Main Line Inspection. The City must inspect all storm, land and groundwater drain main lines during installation on an ongoing basis. Inspection notification must be given before any construction of the pipe may begin. All groundwater drains shall be pre-approved by the City Engineer or his/her designee.

C. Air Pressure Test. Contractor shall conduct a low pressure air test for all sealed drains by the following method under the direction of the City Engineer or his/her designee with equipment equal to Cherne Industrial, Inc., or provide proof that test was conducted by a certified testing company. Storm drain pipes with inside diameters of 30 inches or larger shall be leak tested according to manufacturer's specifications.

All wyes, tees, or ends of lateral stubs shall be suitably capped and braced to withstand the internal test pressures. Caps shall be easily removable for future lateral connections or extensions. After a manhole to manhole section of line has been backfilled and cleaned, it shall be plugged at each manhole with pneumatic plugs.

Low pressure air shall be introduced into the sealed line until the internal air pressure reaches 4 psi-G greater than the average back pressure of any ground water that may be over the pipe. At least 2 minutes shall be allowed for the air pressure to stabilize.

The portion of line being tested shall be accepted if the portion under test does not lose air at a rate greater than 0.003 cubic feet per minute per square foot of internal pipe surface of 2.0 cubic feet per minute minimum when tested at an average 3.0 psi-G greater than any back pressure exerted by ground water that may be over the pipe at the time of the test.

The pipe and joints shall also be considered acceptable when the time required in minutes for pressure to decrease from 3.5 To 2.5 psi-G (greater than the average back pressure of any ground water that may be over the pipe) shall not be less than the time shown for the given diameters in the following table:

PRESSURE REDUCTION TIME LIMITS

Pipe Diameter (inches)	Time (minutes)
4	2.0
6	3.0
8	4.0
10	5.0
12	5.5
15	7.5
18	8.5
21	10.0
24	11.5

If the installation fails to meet this requirement, the Contractor shall determine at his/her own expense the source of leakage. He shall repair or replace all defective materials and/or workmanship. All storm drain lines shall be tested, cleaned and accepted by Spanish Fork City before laying the street surface.

D. Video Inspection. Contractor shall clean and then video inspect all storm, land and groundwater drain lines before paving. The City must approve video inspection company.

Cleaning shall be done using a high pressure jet cleaning machine, producing a minimum of 800 psi. Debris shall not be permitted to enter the City storm drain system.

Video inspection shall clearly show any debris, broken pipe, misaligned pipe, displaced pipe and defective joints for all sections of the main line. All defects and their location shall be detailed on a separate video log report. A digital video disk (DVD) of video inspection and log report shall be submitted by the inspection company to the City Engineer or his/her designee.

Log reports shall be submitted on the City video form or an approved equivalent. Log reports must be submitted with a 11x17 copy of the plans. All manholes in the log report must reference the labeled manholes numbers on the plans. Each manhole must also have a street address clearly shown on the log report.

Log reports must be submitted with a 11x17 copy of the plans. All manholes in the log report must reference the labeled manholes numbers on the plans. Each manhole must also have a street address clearly shown on the log report.

39.25.100. Streets.

A. Bituminous Pavement Material Tests. Material tests will be conducted by the City when the City Engineer or his/her designee considers it necessary.

B. Compaction Tests. The City will test all bituminous pavement for compaction and moisture content. Test locations shall be determined by the City but will generally be taken 3 per 200 lineal foot of street or 1 per 2,000 square foot of paved area. Pay factors as per APWA 02745 APWA 32 12 16 (Plant-Mix Asphalt Paving) shall apply.

C. Grading Inspections. The sub-grade, sub-base, and road base shall all be graded to an engineered red-head and accepted by Spanish Fork City. Red-heads shall be placed every 50 feet at the crown of the road. If the distance between red-heads and edge of pavement exceeds 25 feet additional redheads shall be installed half way between the crown and edge of pavement. Red-heads shall also be placed every 50 feet at the edge of pavement where there is no curb and gutter.

D. Thickness Test. Material depth tests will be conducted by the City when the City Engineer or his/her designee considers it necessary. The total depth shall be reasonably close to that shown on the typical section. Depth analysis shall be made on at least four holes for each section. Base thickness shall be accepted if 75% of the test holes are less than 1/4" below the specified thickness and no individual hole shall be more than 3/4" below the specified thickness. Work with sub-standard thickness may be accepted at reduced price if the appropriate pay factor for the lowest tested thickness is applied to all of the sub-standard work. The following table outlines the pay factors for sub-standard asphalt pavement thickness:

PAVEMENT DEPTH PAY FACTORS

Pay Factor	Tolerance (inches below specified thickness)
0.95	0.00 to 0.25
0.90	0.26 to 0.50
0.70	0.51 to 0.75
0.50	0.76 to 1.00
Replace	More than 1.00

E. Profile Tolerance Inspection. Profile tolerance inspections may be required by the City any time within a year of paving. The maximum vertical distance from the pavement surface to a straight edge for a local streets is:

- 1/4-inch in 10-feet parallel to centerline.
- 3/8-inch in 10-feet perpendicular to centerline except at cross section grade breaks.

Collector and arterial streets shall meet the requirements of APWA 02745 Hot-Mix Asphalt Concrete Paving- APWA 32 12 16 (Plant-Mix Asphalt Paving).

F. Asphalt Concrete Temperature Test. This test shall be conducted on the first load of asphalt concrete installed, and on any future loads as required by the City. Test shall be conducted according to the requirements and specifications of APWA 02745 Hot-Mix Asphalt Concrete Paving APWA 32 12 16 (Plant-Mix Asphalt Concrete Paving). Temperature gauge shall be allowed to stabilize for 1 minute before taking reading.

39.25.110. Culinary Water.

A. General. The inspections and tests in this section are required for all culinary water construction in the City boundaries and on all construction relating to the City culinary water system outside the city boundaries.

B. Main Line Inspection. The City must inspect all culinary water main line installations on an ongoing basis. Inspection notification must be given before any construction of main line may begin. All crosses, tees, bends, valves and hydrants must be inspected and surveyed by the City before they are backfilled covered.

C. Culinary Water Service Inspection. The City must inspect all culinary water services before service trenches are backfilled. The City must be able to survey services at the main during the inspection.

D. High Chlorine Test. High Chlorine tests shall meet the requirements and specifications of APWA 02518 APWA 33 13 00 (Disinfection). The City must conduct a high chlorine test at every hydrant on a new culinary water main installation. If a hydrant does not exist on the test section,

tests must be taken at the end of each line. The chlorine residual shall be at least 25 mg/L.

E. Pressure Test. Pressure test must be conducted after the successful completion of the bacteria test. The Contractor must pressure test all culinary water systems, system extensions and service laterals to the setter in the presence of the City Engineer or his/her designee or have tests documented and submitted by a certified testing company approved by the City. Pressure tests must meet the requirements and specifications of ~~APWA 01815~~ **APWA 33 08 00 (Commissioning of Water Utilities)**.

F. Leakage Test. Leakage tests shall be conducted concurrently with the pressure tests. Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe, or any valved section thereof, to maintain pressure within 5 psi of the specified test pressure after the air in the pipeline has been expelled and the pipe has been filled with water. No pipe installation will be accepted if the leakage is greater than that determined by the following formula:

$$0.000106 \times L \times D = AL$$

$$Q \equiv \frac{LD * \sqrt{P}}{133,200}$$

in which ~~Q~~ **AL** is the allowable leakage, in gallons per hour; L is the length of pipeline tested in feet; **P is the average test pressure, in pounds per square inch (gage)** and D is the nominal diameter of the pipe in inches. **Provide 225 psi test pressure for 2 hours unless specified otherwise.**

~~When testing against closed metal-seated valves, an additional leakage per closed valve of 0.0078 gallons per hour per inch of nominal valve size shall be allowed.~~

If any test of pipe laid discloses leakage greater than specified, the Contractor shall, at ~~their~~ **its** own expense, locate and repair the defective material until the leakage is within the specified allowance. All visible leaks are to be repaired regardless of the amount of leakage.

G. Bacteria Test. Bacteria tests shall meet the requirements and specifications of ~~APWA 02518~~ **APWA 33 13 00 (Disinfection)**. Tests may only be scheduled at certain regular times set by the City. The Contractor shall be present and open all hydrants or other locations to be tested from. The City shall submit samples to a certified lab to be tested according to state drinking water regulations.

If any sample point fails on the first test, the line will be flushed and re-tested at all sample points. If any sample point fails a second time the complete line will re-disinfected and re-tested at all sample points. If any samples come back marked "presence", which means coliform bacteria is present, the line will be re-disinfected

and re-tested at all sample sites. Contractor is responsible to pay for all bacteria tests and retests.

Culinary water services will not be installed until bacteria sample results have been approved by the City Engineer or his/her designee. All testing lab fees shall be paid for by the Contractor.

Chapter 39.30. Contractor Requirements.**39.30.010. General.**

- A. Contractors Working for a Developer.
- B. Contractors Working for the City.
- C. Status Verification System

39.30.020. Insurance.

- A. General.
- B. Workers' Compensation.
- C. Commercial General Liability Insurance.
- D. Automobile Liability Insurance.

39.30.030. Bonding.

- A. General.

39.30.040. Excavation Permits.

- A. General.
- B. Contractors.
- C. Property Owners.

39.30.050. Inspection Fees.

- A. General.

39.30.010. General.

A. Contractors Working for a Developer. Contractors and Sub-Contractors working for a Developer must prequalify before doing any work in existing or proposed City property, streets, easements, or right-of-way and for any work on existing or proposed City utilities. To prequalify the following must be on file in the City Engineer's office:

1. A current Contractor's license **specified for project type according to Utah State Code;**
2. Insurance information;
3. Contractor information sheet;
4. Project Bond;
5. Excavation Permit;
6. UDOT Permit for construction in state right-of-way; and
7. Railroad Permit for construction in railroad right-of-way.

Failure to pre-qualify before doing any construction shall constitute grounds for legal action.

B. Contractors Working for the City. Bids for City projects will only be awarded to the lowest responsible bidder **with current contractors license specified for the project type according to the Utah State Code. as specified in the Utah State Code.** The ~~City's Cities~~^{City's} contractor qualifications and experience forms shall be completely filled out and submitted with bid. Failure to do so is basis to reject the bid. Spanish Fork City reserves the right to determine a non-responsible bidder based upon these forms or any other research conducted by the city.

C. Status Verification System. **Contractor agrees that it, and its subcontractors, will register with and use a Status Verification System to verify the federal employment authorization status of all employees hired after July 1, 2009. Contractor, and its subcontractors, will comply, in**

all respects, with Utah Code Annotated §63-99a-103, as it may be amended from time to time.

39.30.020. Insurance.

A. General. A Contractor must acquire the insurance stipulated in this section to prequalify to do construction work. The city must receive and accept proof of the insurance before any work may begin. The submittal of said evidence to the City shall not relieve or decrease the liability of the Contractor hereunder.

B. Workers' Compensation. Contractor shall obtain workers compensation insurance as required by State law.

C. Commercial General Liability Insurance. The following commercial general liability insurance must be obtained and submitted on ISO Form CG 00 01 (11/85) or equivalent, occurrence policy, with limits not less than

- | | |
|-------------------------------------|-------------|
| 1. General Aggregate | \$1,000,000 |
| 2. Products - Comp/OPS Aggregate | \$1,000,000 |
| 3. Personal and Advertising Injury | \$ 500,000 |
| 4. Each Occurrence | \$ 500,000 |
| 5. Fire Damage (any one fire) | \$ 50,000 |
| 6. Medical Expense (any one person) | \$ 5,000 |

Also include the follow endorsements or their equivalents attached thereto:

1. ISO Form CG 25 03 (11/85), Amendment Of Limits Of Insurance (Designated Project or Premises), describing the subject contract and specifying limits as shown above.
2. ISO Form CG 20 10 (11/85), Additional Insured -- Spanish Fork City, Lessees, or Contractors (Form B), naming the City as additional insured and containing the following statement, "This Endorsement Also Constitutes Primary Coverage in the Event of any Occurrence, Claim, or Suit".

D. Automobile Liability Insurance. Contractor shall obtain automobile liability insurance with limits of not less than \$500,000 Combined Single Limit per accident. Coverage shall apply to any auto.

39.30.030. Bonding.

A. General. The owners and/or developers of property shall deposit security with the City to guarantee proper installation of all required improvements in accordance with the plans, specifications, time limitations, and conditions relating thereto as meets with the approval of the City Council or such personnel as the City Council shall designate. Security shall be in the form of cash in the minimum amount of 15% of the City's bond amount. The balance of the security shall be in the form of cash, an irrevocable letter of credit, or an escrow bond. The amount of the security shall be 125% of the City's estimated costs of the improvements.

Irrevocable letters of credit or escrow bonds shall be executed by financial institutions acceptable to the City and authorized to conduct business in the State of Utah, and

must be in the form approved by the City. The bond or letter of credit as required by this section must be posted prior to recording. Upon completion of the punch list for the end of construction inspection, the security less the 15% cash bond and the amount estimated for the 1 year overlay shall be released to the Developer. Fifteen percent (15%) of the security amount shall be held for a period of one (1) year following final inspection and acceptance to warrant improvements for this time period. The fifteen percent retained shall be the cash amount required as the minimum security.

39.30.040. Excavation Permits.

A. General. Contractors are required to ~~pre-~~qualify before obtaining an excavation permit to do construction work unless a project is already approved, bonded and insured. The permit must be approved 48 hours prior to construction. The permittee is given a copy of the permit and plan after the City Engineer or his/her designee has approved and signed them.

The City may stipulate time limits for completion of work and suspend permits for non-compliance. A copy of the excavation permit shall be on site during construction. The following fee factors shall be applied toward excavation permits for more recently paved streets:

FEE FACTORS

Fee Factor	Age of Pavement
4.00	Less than 1 Year
3.00	1 to 3 Years
2.00	3 to 5 Years
1.50	5 to 10 Years

If utilities are bored then the excavation permit fee shall be reduced by one half.

B. Contractors. Contractors are required to submit the following information to obtain an excavation permit:

1. Copy of Contractors license;
2. Certificate of Insurance;
3. Cash bond of \$10,000.00;
4. Detailed drawing of proposed work and traffic control (4 copies).

C. Property Owners. Individual property owners doing his/her own work for drive approaches and other similar, minor concrete work in the City right-of-way are required to submit the following information to obtain an excavation permit:

1. Proof of homeowners or similar insurance;
2. Cash or escrow bond in the amount of \$1,000.00;

3. Detailed drawings of the proposed work, including safety, barricades, traffic and pedestrian control.

39.30.050. Inspection Fee.

A. General. For bonded developments an inspection fee will be collected. The fee will be for city costs relating to the construction. These costs include but are not limited to survey, inspection, testing and administration. The fee will be estimated based upon previous projects. Portions of the fee not used shall be refunded to the Developer after the punch list of the final acceptance inspection is completed.

If City costs relating to inspection exceed the inspection fee, these costs will be paid for by the developer or they will be deducted from the 15% cash bond. ~~The City will hold 10% of the inspection fee until the final acceptance inspection punch list is completed.~~

Chapter 39.35. Earthwork and Trenches.**39.35.010. Excavation.**

- A. General.
- B. Safety.
- C. In Gravel and Paved Surface Areas.
- D. In Areas with Concrete.
- E. Rock Excavations.
- F. Site Clearing and the Disposal of Excess Materials.

39.35.020. Sub-surface Pipe Installation.

- A. General.
- B. Boring or Jacking.
- C. Tunneling.

39.35.030. Subgrade.

- A. Preparation.
- B. Soft and Yielding Areas.
- C. Trenches.
- D. Roads.
- E. Structures.

39.35.040. Fill Material.

- A. General.
- B. Bedding Material.
- C. Engineered Fill.
- D. Untreated Base Course.
- E. Cement Treated Fill.
- F. Defective Fill.

39.35.050. Slopes, Embankments, Fills and Open Channels.

- A. Preparation.
- B. Material.
- C. Grading.
- D. Slope Safety.
- E. Erosion and Sedimentation Control.
- F. Gabions.
- G. Rip Rap and Rock Lining.

39.35.060. Installation and Compaction of Earth Materials.

- A. General.
- B. Water Settling.
- C. Streets.
- D. Soft and Yielding Spots.
- E. Backfill in Trenches.
- F. Pipe Zone.

39.35.070. Geotextiles, Geogrids and Geocomposites.

- A. General.

39.35.010. Excavation.

A. General. Excavation shall meet the requirements and specifications of ~~APWA 02315~~ **APWA 31 23 16 (Excavation)** unless otherwise indicated.

B. Safety. All construction shall be done in accordance with the provisions of the Utah State Industrial Commission, OSHA regulations and ~~APWA 02250~~ **APWA 31 23 16 (Excavation)**. No trenches deeper than 4 feet shall be left open at any time unless construction is in process. When

construction is in process only 200 feet of trench may be open at one time and must be completely backfilled before proceeding. No trenches shall be left open at any time unless guarded with adequate barricades, warning lamps and signs.

Any injury or damage resulting from lack of adequate bracing and shoring shall be the responsibility of the Developer/Contractor and the Developer/Contractor shall, at his/her own expense, effect all necessary repairs or reconstruction resulting from such damage. No inspections will be done in unsafe trenches and will be the cause for immediate shutdown at the project **until the trench is deemed to be safe by the City Engineer or his/her designee.**

C. In Gravel and Paved Surface Areas. Where any excavation occurs in a gravel or paved surface area such as a road, driveway or parking area, the surface shall be restored according to the requirements and specifications of ~~APWA 02985~~ **APWA 33 05 25 (Pavement Restoration)** and the following conditions:

1. *Base.* Only engineered fill may be used as backfill or sub-base material under gravel and paved surfaces. A minimum of 8 inches of untreated base course shall be placed over backfill or sub-base. All fill material shall be placed and compacted to City standards. Flowable fill shall not be allowed for backfill unless authorized by the City.
2. *Surface Maintenance.* The surface shall be maintained by blading, sprinkling, rolling, adding gravel, etc., to maintain a safe uniform surface satisfactory to the City.
3. *Cutting of Pavement.* Before any excavation in a paved area, the surface along the entire excavation shall be cut to provide a vertical joint in the surface. Cut shall be made 6 inches from the edge of excavation in straight lines parallel or perpendicular to the trench or edge of pavement. A pavement saw shall be used for all pavement cutting. If excavation damages the cut pavement, pavement shall be cut again before patching. A rotomilled edge shall be acceptable as a cut.
4. *Time Limitation.* All road cuts shall be repaired within 2 working days of excavation unless otherwise authorized by the City Engineer or his/her designee.
5. *Cold Weather Patching.* Trenches cut during winter months or when asphalt plants are not operating, shall be patched the same day of the cut with a good quality cold mix according to the requirements and specifications of ~~APWA 02985~~ **APWA 32 12 17 (Cold-Mix Asphalt Paving)**. These trenches shall be maintained until asphalt plants open. When asphalt plants open, the temporary cold patch shall be removed and a new patch of hot mix asphalt shall be placed. All cold

mix patches shall be replaced with hot mix patches within 20 days of the opening of the hot mix plant.

6. Adjust Incidental Structures to Grade. Adjust incidental structures to grade according to ~~APWA 02990~~ **APWA 33 05 14 (Utility Grade Adjustment)**. City standard concrete collars around valves and manholes shall be installed 1 year from the time that pavement is placed or at the time of an overlay.

D. In Areas with Concrete. When damaged, existing concrete improvements shall be removed and replaced to the next joint or scoring line beyond the damaged or broken sections. In the event that joints or scoring lines do not exist or are three or more feet from the removed or damaged section, the damaged portions shall be removed and reconstructed to neat, plane faces. All concrete work shall meet the requirements and specifications of Chapter 39.65. Portland Cement Concrete Work and ~~APWA 02985~~ **APWA 33 05 25 (Pavement Restoration)**.

E. Rock Excavations. Rock excavations shall meet the requirements and specifications of ~~APWA 02317~~ **APWA 31 23 17 (Rock Removal)**.

F. Site Clearing and the Disposal of Excess Materials. Site clearing shall be conducted according to ~~APWA 02115~~ **APWA 31 11 00 (Site Clearing)**. All excavation material, which is not required for construction or is unsuitable for fill material, shall be immediately disposed of by the Contractor. All roads, sidewalks, curbs, gutters and ditches shall be kept clean of excavated material except as outlined in Title 12.04.050 of the Spanish Fork City Municipal Code.

All demolition work shall meet the requirements and specifications of ~~APWA 02220 for site demolition, 02222 for pavement demolition and 02223 for pavement pulverizing.~~ **APWA 02 41 13 (Selective Site Demolition), APWA 02 41 14 (Pavement Removal) and APWA 02 41 15 (Pavement Pulverizing)**.

39.35.020. Sub-surface Pipe Installation.

A. General. Pipes, conduits or casings, 4 inches in diameter or less, may be bored, jacked, augured or jetted under sidewalk, curb, gutter if authorized by the City Engineer or his/her designee. The resulting hole diameter ~~shall does~~ not exceed 1 inch plus the outside diameter of the pipe or sleeve installed.

B. Boring or Jacking. Boring or jacking work shall meet the requirements and specifications of ~~APWA 02445~~ **APWA 33 05 23 (Trenchless Utility Installation)**.

C. Tunneling. Where sidewalk, curb, and gutter exists, excavation may be made by tunneling provided the following requirements are met:

1. Excavation shall be vertical and as near to the curb or sidewalk as possible;
2. The length of the tunnel shall not exceed the width of the sidewalk, curb, and gutter;

3. Where a separate sidewalk and curb exist, an excavation shall be made between the sidewalk and the curb;
4. At least three feet of undisturbed earth shall be left under the sidewalk or curb; and
5. Where the sidewalk has been tunneled, the hole shall be filled from each end with flowable fill.

Where the excavation cannot meet these requirements, a section of sidewalk, curb, or gutter, from joint to joint shall be removed and replaced.

39.35.030. Sub-grade.

A. Preparation. All sub-grade shall be shaped and compacted in reasonably close conformity with lines, grades and typical cross section as established by the City Engineer or his/her designee. All grading shall be based on an engineered survey, accepted by Spanish Fork City.

In trenches and cut or fill areas the subgrade shall be scarified to a depth of 8 inches and compacted according to the compaction standards of this chapter. No rocks larger than 4 inches in diameter, organic material, soft clay, spongy material, or other deleterious material will be permitted in this scarified sub-grade layer.

B. Soft and Yielding Areas. Soft and yielding areas which do not compact to City standards shall be removed and replaced with enough compacted engineered fill to bridge the area. Trenches excavated within 10 feet of the lip of gutter shall be removed and replaced as part of the trench asphalt pavement repair, or otherwise approved by the City Engineer.

C. Trenches. When the sub-grade material does not afford a sufficiently solid foundation to support the pipe and superimposed load, the trench shall be over-excavated to a sufficient depth and backfilled with enough compacted fill as approved by the City to bridge the area.

D. Roads. Road sub-grades shall be shaped and graded to within a tolerance of 0.15 feet of design grade. Drainage shall be maintained at all times.

E. Structures. Sub-grade material for all concrete structures, regardless of type or location, shall be firm, dense, thoroughly compacted and consolidated; shall be free from mud and muck; and shall be sufficiently stable to remain firm and intact under the feet of the workmen engaged in sub-grade surfacing, laying reinforcing steel, and depositing concrete.

Coarse gravel or crushed stone may be used for subsoil reinforcement if results are satisfactory to the City Engineer or his/her designee. Such material shall be applied in layers, not exceeding 6 inches in thickness, each layer being embedded in the sub-soil by thorough tamping. All excess soil shall be removed to compensate for the displacement of the gravel or crushed stone and the finished elevation of any subsoil reinforced in this manner and shall not be above the specified sub-grade.

The City Engineer may require a soil analysis and design for any area.

39.35.040. Fill Material.

A. General. All fill material shall be placed on sub-grade prepared according to the specifications of this chapter. All fill material shall be compacted according to the specifications of this chapter.

Only engineered fill or untreated base course may be used as fill material under and within a foot of streets, future street areas, driveways, and concrete unless otherwise specified. All fill material under and within a foot of electrical and communications boxes shall be untreated base course. In other areas native excavated material may normally be used unless such material cannot be properly compacted according to specifications in this chapter. All fill material, including native fill material, must be free from debris, organic material, and rocks larger than 6 inches in diameter and have a liquid limit not to exceed 35 and plastic limit not to exceed 15.

B. Bedding Material. Use APWA No. 4 sewer rock for gravity pipe bedding material. Use sand as a bedding material for pressure pipe and electrical and communication conduit. Bedding sand must compact sufficiently to support the pipe and shall meet the following gradation:

SAND GRADATION

Sieve/Screen Size	% Passing
No. 4	100
No. 200	10 to 20

C. Engineered Fill. Engineered fill shall be used for all imported material unless otherwise specified. Engineered fill shall be granular and well graded meeting the following gradation:

ENGINEERED FILL GRADATION

Sieve/Screen Size	% Passing
4"	100
¾"	70 to 100
No. 200	0 to 15

On that portion of the aggregate passing the No. 40 sieve, the liquid limit shall not exceed 30, nor shall the plasticity index exceed 15 when tested in accordance with AASHTO T89 and T90. Imported material under city streets shall have a minimum CBR of 25.

Reclaimed asphalt pavement (RAP) that meets the requirements and specifications of ~~APWA 02748~~ **APWA 32**

01 16 (Recycled Asphalt Paving) may be used as engineered fill.

D. Untreated Base Course. All untreated base course shall meet the requirements and specifications of ~~APWA 02060~~ **APWA 32 11 23 (Crushed Aggregate Base)** Grade 3/4 for untreated base course. The use of slag as an untreated base course shall not be permitted.

E. Cement Treated Fill. Cement treated fill shall meet the requirements and specifications of ~~APWA 02062~~ **APWA 31 05 15 (Cement Treated Fill)**. Cement treated fill includes following fill materials:

- a. Controlled low-strength material (CLSM) (flowable fill),
- b. Lime treated fill,
- c. Asphalt treated fill.

F. Defective Fill. Fill not conforming to the requirements of this specification shall be reworked to the requirements or removed and replaced with acceptable fill.

39.35.050. Slopes, Embankments, Fills and Open Channels.

A. Preparation. Unsuitable materials that occur in the foundation for slopes, embankments, and fills shall be removed by clearing, stripping, and/or grubbing. Where suitable materials occur, after stripping, the foundation shall be scarified to a depth of not less than 8 inches. All materials in slopes, embankments, and fills, including the scarified foundation layer, shall be placed, moistened, and compacted according to the compaction standards in this chapter.

B. Material. When the slope, embankment, or fill exceeds the amount of excavation, sufficient additional material shall be obtained from borrow pits provided by the Contractor. All material proposed to be imported shall be subject to the review and approval of the City Engineer or his/her designee prior any hauling operations.

The materials used for slope, embankment and fill construction shall be free from sod, grass, trash, rocks larger than 6 inches in diameter and all other material unsuitable for construction of compacted fills.

C. Grading. Grading of completed slope, embankment, or fill shall bring the surfaces to a smooth, uniform condition with final grades being within 0.1 foot of the design grade. All grading shall be done to an engineered red-head.

D. Slope Safety. All slope construction shall be in accordance with all City, State and Federal regulations. Plans and Specifications for structures must be approved by the City if the excavation is greater than five (5) feet. No permanent slopes steeper than 3:1 shall be allowed without a retaining structure unless otherwise approved in writing by the City Engineer or his/her designee. The width of the excavation shall be increased if necessary to provide space for sheeting, bracing, shoring and/or other supporting

installations. Unsafe slopes will be the cause for immediate shutdown of the project.

E. Erosion and Sedimentation Control. Erosion and sedimentation control shall meet the requirements and specifications of ~~APWA 02370~~ **APWA 31 25 00 (Erosion and Sedimentation Control)**.

F. Gabions. Gabions shall meet the requirements and specifications of ~~APWA 02372~~ **APWA 31 36 00 (Gabions)**.

G. Rip Rap and Rock Lining. Rip rap and rock lining work shall meet the requirements and specifications of ~~APWA 02376~~ **APWA 31 37 00 (Riprap or Rock Lining)**.

39.35.060. Installation and Compaction of Earth Materials.

A. General. The installation of all fill material shall meet the requirements and specifications of ~~APWA 02320 Backfilling Trenches, 02321 Backfilling Structures and Landscapes, 02322 Backfilling Pavements and 02324 Compaction~~ **APWA 33 05 20 (Backfilling Trenches), APWA 31 23 23 (Backfilling Structures), APWA 32 05 10 (Backfilling Roadways) and APWA 31 23 26 (Compaction)**. Fill material outside of pavement areas, as defined by ~~APWA 02322~~ **APWA 32 05 10 (Backfilling Roadways)**, and more than 24 inches from any utility box shall be compacted to not less than 90% of the maximum dry density.

~~B. Water Settling. Water settling may be permitted with preapproval by the City Engineer or his/her designee, depending upon the type of soil and location. When water settling is approved, a City representative shall be at the job site during the compaction.~~

~~Water shall be applied by jetting unless flooding is specifically authorized by the City Engineer or his/her designee. Water for consolidation shall be furnished by the Contractor at his or her's own expense.~~

~~In the jetting procedure the jets shall be inserted at not more than 4 foot intervals, staggered throughout the length of the backfilled area and shall be slowly forced down to the bottom of the trench or top of previously jetted lift and held until the trench backfill is completely saturated with water. Depth of jetted lift shall not exceed 5 feet.~~

~~When the material has dried sufficient to allow compaction tests, the Contractor shall dig test holes for compaction tests at locations and depths required by the City Engineer or his/her designee. Authorization by the City Engineer or his/her designee to use any consolidation method does not relieve the Contractor of it's responsibility to meet the specified density requirements.~~

C. Streets. Sub-base and road-base shall be graded to an engineered red head. Loose rock, roots, brush, and other materials that may be encountered in shaping the sub-base must be removed.

D. Soft and Yielding Spots. Any soft and yielding spots in the fill or sub-grade which do not compact to the specified density shall be removed and replaced with engineered fill installed and compacted to City standards.

E. Backfill in Trenches. Backfill shall be carefully placed around and over pipes and shall not be permitted to fall directly on a pipe from such a height or in such a manner as to cause damage.

F. Pipe Zone. The pipe zone includes the full width of trench from 3 inches below the pipe to 6 inches above the pipe for all pipes except for large reinforced concrete pipe (RCP). Large RCP includes RCP with internal diameters larger than 24 inches. The pipe zone for large RCP shall include the full width of trench from 6 inches below the pipe to 6 inches above the pipe. The pipe zone shall extend horizontally a minimum of 6 inches from either side of the pipe except for electrical and communication conduit. Electrical and communication conduit conduit may be placed against the sides of trenches. Trenches shall be wide enough to compact fill material according to the specifications in this chapter.

The pipe zone for all pipes shall be filled with compacted bedding material. Pipe zone materials shall be placed and compacted under and around the pipe in horizontal layers not to exceed 8 inches and tamped by hand or pneumatic tampers.

39.35.070. Geotextiles, Geogrids and Geocomposites.

A. General. All geotextile work shall meet the requirements and specifications of ~~APWA 02075~~ **APWA 31 05 19 (Geotextiles)**. Geogrid and geocomposite work shall meet the requirements and specifications of ~~APWA 02076~~ **APWA 31 05 21 (Geogrids/Geocomposites)**. Geotextile, geogrid and geocomposite work includes but is not limited to the following geotextile applications:

- a. Stabilization-separation,
- b. Silt fence,
- c. Erosion control,
- d. Roadway pavements,
- e. Drainage,
- f. Weed barrier
- g. Granular base reinforcement,
- h. Asphalt concrete reinforcement, and
- i. Soil reinforcement.

Chapter 39.40. Culinary Water.**39.40.010. General.**

- A. Specifications.
- B. Pipe.
- C. Size.
- D. Location.
- E. Unusual Piping and Plumbing.

39.40.020. Installation.

- A. General.
- B. Pipe Cleanliness.
- C. Identification Tape.
- D. Lateral Displacement.
- E. Restraining.
- F. Connections to Existing Culinary Water Lines.

39.40.030. Pipe and Fittings.

- A. General
- B. Polyvinyl Chloride Pipe (PVC).
- C. Ductile Iron Pipe.
- D. Polyethylene Pipe.
- E. Steel Pipe - Lined and Coated.
- F. Fittings

39.40.040. Valves and Couplings.

- A. General.
- B. Resilient Seated Gate Valve.
- C. Butterfly Valve.
- D. Valve Boxes.
- E. Couplings.
- F. Pressure Regulation Valves.
- G. Tapping Valves.
- H. Air Vacuum and Release Valves.

39.40.050. Fire Hydrants.

- A. General.
- B. Placement and Location.

39.40.060. Meters and Services.

- A. General.
- B. Placement and Location.
- C. Meters.

39.40.070. Flushing.

- A. General.
- B. Velocity.

39.40.080. Disinfection of Culinary Water Lines.

- A. Cleaning.
- B. Methods.

39.40.010. General.

A. Specifications. These specifications cover the installation of culinary water lines. See Chapter 39.20. for improvement and design requirements, Chapter 39.25. for inspection and testing requirements, and Chapter 39.35. for earthwork and trench requirements. See standard drawings related to water.

B. Pipe. Polyvinyl chloride (PVC) pipe shall be used for all culinary water mains unless authorized by the City Engineer or his/her designee.

C. Size. The City **Engineer or his/her designee** must approve the sizes of all proposed culinary water lines. The minimum size of culinary water pipe is 8 inch diameter for main lines and 1 inch diameter for services.

D. Location. Culinary water mains shall be located on either the north or east sides of a street 10 feet from the centerline. See standard drawings for utility locations.

E. Unusual Piping and Plumbing. Special and unusual piping and plumbing for equipment or structures are treated as separate items and are not included in these standards. They shall be approved by the City **Engineer or his/her designee.**

39.40.020. Installation.

A. General. Culinary water distribution and transmission systems shall be installed according to the requirements and specifications of ~~APWA 02510~~ **APWA 33 11 00 (Water Distribution and Transmission)**. PVC pipe shall also be installed according to the requirements and specifications of AWWA C605.

B. Pipe Cleanliness. All foreign matter or dirt shall be removed from the inside of the pipe before it is placed and it shall be kept clean during and after laying. No debris, tools, or other materials shall be placed in the pipe during laying operations. When laying of pipe is not in progress, the pipe shall be closed by a water-tight plug.

C. Identification Tape. All culinary water mains shall be installed with identification tape that meets the requirements and specifications of ~~APWA 02320~~ **APWA 33 05 20 (Backfilling Trenches)**. Tape shall be buried 12 inches below grade.

D. Lateral Displacement. All pipes shall be protected from lateral displacement resulting from impact or unbalanced loading during backfilling operations.

E. Restraining. Either thrust blocks or mechanical restraining devices shall be used for all tees, valves, plugs, caps and bends. Restraining shall be accomplished according to the standard drawings.

F. Connections to Existing Culinary Water Lines. The Contractor will be responsible to verify actual size, type of material and location of existing utilities in the field. The fittings and materials required for construction must be approved by the City Engineer or his/her designee.

Where fitting sizes, such as tees and crosses, are shown on the plans, those sizes will be used. However, no attempt has been made to show all needed fittings or materials.

Tapping tees may only be installed when authorized by the City Engineer or his/her designee and when the existing main is at least one size smaller than the proposed main.

39.40.030. Pipe and Fittings.

A. General. Polyvinyl Chloride (PVC) pipe shall be used for all culinary water mains 24 inches in diameter and smaller unless otherwise authorized by the City Engineer or his/her designee. Ductile iron or polyethylene pipe shall be used for culinary water mains larger than 12 inches in diameter. Only PVC or polyethylene pipe may be used in corrosive soils.

B. Polyvinyl Chloride Pipe (PVC). PVC pipe shall meet the standards and specifications of ~~APWA 15014~~ **APWA 33 05 07 (Polyvinyl Chloride Pipe)**, AWWA C900 and C905. Only blue or white, SDR-18 pressure class 150 psi PVC pipe may be used for culinary water mains.

C. Ductile Iron Pipe. Ductile iron pipe shall meet the standards and specifications of ~~APWA 15011~~ **APWA 33 05 05 (Ductile Iron Pipe)**. Only a pressure class of 150 psi or larger may be used. A tubular black polyethylene encasement must be installed according to AWWA C105 over all ductile iron pipe and fittings. Flanges, when required, shall meet the requirements and specifications of AWWA C115.

D. Polyethylene Pipe. Polyethylene pipe shall meet the standards and specifications of ~~APWA 15013~~ **APWA 33 05 06 (Polyethylene Pipe)**.

E. Steel Pipe - Lined and Coated. Steel pipe shall meet the standards and specifications of ~~APWA 15010~~ **APWA 33 05 09 (Steel Pipe - Lined and Coated)**.

F. Fittings. Use Ductile Iron fittings that conform to the provisions of ANSI/AWWA C110/A21.10 or C153/A21.53 unless otherwise recommended by the manufacturer and authorized by the City Engineer or his/her designee. All PVC pipe being inserted into fittings shall have the bevel end removed. All the bolts and nuts of all fittings shall be greased. All fittings shall have an 8 mil vinyl wrap plastic cover.

Minimum pressure Class will be 250 for pipes larger than 12 inch diameter. Pipes of 12 inch diameter and smaller shall be pressure Class 350.

39.40.040. Valves and Couplings.

A. General. All valves shall meet the requirements of ~~APWA 02510 and APWA 15030~~ **APWA 33 11 00 (Water Distribution and Transmission) and APWA 33 12 16 (Water Valves)**.

B. Resilient Seated Gate Valve. All valves on 4 inch to 10 inch culinary water mains shall be resilient seated gate valves. Valves shall also be of iron body have non-rising bronze stems and meet the following specifications:

1. *Mechanical Joint.* When valves are Mechanical Joint, they shall be furnished with all necessary glands, followers, and bolts and nuts to complete installation.
2. *Valve Stems.* Bronze valve stems shall be interchangeable with stems of the double disc

valves of the same size, direction of opening and manufacture.

C. Butterfly Valve. All valves 12 inches and larger shall be butterfly valves which meet the requirements and specifications of ~~APWA 02510, 15030~~ **APWA 33 11 00 (Water Distribution and Transmission) and APWA 33 12 16 (Water Valves)** and the following specifications:

1. *General.* Valve bodies shall be cast iron, ASTM A-126 Class B. Body ends shall be flanged with facing and drilling in accordance with ANSI B16.1, Class 125; or mechanical joint in accordance with AWWA C111. All mechanical joint end valves shall be furnished complete with joint accessories (bolts, nuts, gaskets, and glands). All valves shall conform with AWWA Standard C-504, Table 3, Laying Lengths for Flanged Valves and Minimum Body Shell Thickness for all Body Types.
2. *Disc.* Valve disc shall be ductile iron ASTM A-536, grade 65-45-12. Valve disc shall be of the offset design providing 360 degree uninterrupted seating.
3. *Shaft Bearings.* Shaft bearings shall be contained in the integral hubs of the valve body and shall be self-lubricated sleeve type.
4. *Coating.* All valves shall be coated with epoxy in conformance to AWWA Standard C-550, latest revision. Interior wetted ferrous surfaces shall be coated a nominal 10 mils thick for long life; and body exterior shall have a minimum of 3 to 4 mils coating thickness in order to provide superior base for field-applied finish coats.

D. Valve Boxes. ~~Valves shall be aligned with the front of sidewalk where possible.~~ **Valves shall be bolted to the cross in the intersection of streets as a cluster valve set.** ~~aligned with the front of sidewalk where possible.~~ Earth fill shall be carefully tamped around the valve box to a distance of 4 feet on all sides of the box, or to the undisturbed trench face if less than 4 feet.

All top of valve boxes located in streets shall be installed 1/4 inch below grade. When a 1 inch overlay is required a year after the road construction, the pavement surrounding the valve box shall be neatly cut to form a 30 inch round opening with the valve box centered, and a concrete collar shall be cast around the box 1/4 inch below grade and the valve box set 1/2 inch below grade. Valve boxes in off-road areas shall extend 6 inches above grade. Lid detail shall be similar to Comco C-6517.

E. Couplings. Couplings shall be equal to the product of Smith-Blair or Dresser with cast iron couplings being used on all cast iron and PVC pipe. Couplings shall be of the straight, transition, or reducing style as required by the specific installation. All steel fittings and bolts shall be coated with a non-oxide coating and wrapped with polyethylene.

F. Pressure Regulation Valves. Pressure regulation valves (PRV) which are required in a development shall be designed by the Developers engineer and the design shall be submitted to the City Engineer or his/her designee for review and approval prior to starting construction. All PRV's shall be Cla-Val with a 4" **bypass** or approved by the City Engineer **bypass**, be placed in a concrete vault and have telemetry included.

G. Tapping Valves. Tapping valves may only be used when previously approved by the City Engineer or his/her designee. Tapping saddles with an "O" ring may be used if the culinary water main line to be tapped is larger than the new culinary water main line. Where the tap is the same size as the existing main, cast iron or stainless steel tapping sleeves shall be used, which encase the full perimeter of the pipe. The valve shall be a tapping valve with a guide lip on the flanged side. The opposite side of the valve shall have a mechanical joint connection.

H. Air, Vacuum and Release Valves. Combination air, vacuum and release valves shall be installed according to the standard drawings at high points in the system as required by the City **Engineer or his/her designee.**

39.40.050. Fire Hydrants.

A. General. Fire hydrants shall meet the requirements and specifications of ~~APWA 02512~~ **APWA 33 12 19 (Hydrants)**. All fire hydrants shall be Waterous WB-67 or approved equivalent and red in color. They shall have a 5 ¼ inch barrel diameter and 6 inch **mechanical joint connection, gate valve and valve box complete for a 4 foot 6 inch trench and one 4 ½ inch streamer nozzle and two 2 ½ inch hose nozzles.** The six inch gate valve will be flanged by mechanical joint connected to the main line tee. The valve box complete for 4 foot 6 inch trench with lid that read "FIRE" with one 4 ½ inch streamer nozzle and two 2 ½ inch hose nozzles. Hydrants shall be frost proof. The threads shall be National Standard Fire Hose Thread. All outlets will have a national standard thread and the hydrant shall be red in color. Spacing of fire hydrants shall be according to the Uniform Fire Code.

B. Placement and Location. Fire hydrant location to be determined by the City **Engineer or his/her designee.** Fire hydrants shall be set vertical and held in place by adequate concrete blocking which shall be left in the trench. Hydrants shall be set at a height that will allows approximately 2 inches exposed between the finished ground and the sidewalk flange. A gravel filled drip area shall be provided. See standard drawing for fire hydrants.

The relocation of fire hydrants shall meet the requirements and specifications of ~~APWA 02993~~ **APWA 33 11 11 (Relocate Water Meters and Fire Hydrants)** and related sections.

39.40.060. Meters and Services.

A. General. See the standard drawings for culinary water services. The minimum size of new culinary water service lines is 1 inch. All culinary water services shall have dual check valves. Culinary water services shall extend 13 feet beyond the back of sidewalk until connected to a building.

B. Placement and Location. All meters boxes shall have their location and grade staked prior to installation. No meter boxes shall be set in sidewalks or driveways. Service taps shall be a minimum of 36 inches apart. No taps will be allowed within 36 inches of the end of the pipe.

Service laterals shall extend perpendicular from the main to the meter box. If a meter must be moved it may only be displaced a maximum of 24 inches to either side. If it must be moved more than 24 inches, a new service line must be installed. When a new service line is installed the old corporation stop shall be shut off at the main and the old service line cut two feet from the main.

Culinary water service lines shall meet the separation from sanitary sewer requirements in this chapter. Culinary water services shall extend 12 feet beyond the back of sidewalk and plugged until connected to a building.

The relocations of culinary water meters shall meet the requirements and specifications of ~~APWA 02993~~ **APWA 33 11 11 (Relocate Water Meters and Fire Hydrants)** and related sections. ~~Only Type K copper pipe conforming to the requirements and specifications of APWA 15012 shall be permitted between the culinary water main and the meter.~~ **Services 1 inch and larger shall be polyethylene pipe conforming to the requirements and specifications of APWA 33 05 06 (Polyethylene Pipe) shall be permitted between the culinary water main and the meter. Only CTS SDR9 200 psi blue polyethylene pipe shall be used for service lines. All connections shall have stainless steel stiffeners. Pipe damaged by scratches, cuts, kinks, or buckled areas shall not be installed. Deflection in joints shall meet manufacturer's specifications and approved by the City Engineer or his/her designee, or shall be replaced with the proper fitting.**

C. Meters. All meters shall be paid for by the Contractor and supplied by the City. Meter boxes shall be in good repair. They shall not be set at an angle, crushed, or dented. The inside of boxes must be free from obstructions such as dirt, rocks or debris.

39.40.070. Flushing.

A. General. All culinary water lines shall be flushed after the high chlorine test and prior to the pressure test. See Chapter 39.25. Testing and Inspection for testing information. Flushing shall be accomplished through hydrants and at the end each line.

B. Velocity. The Contractor shall install a tap sufficient in size to provide for 2½ foot per second flushing velocity in the line. The following is the flow quantity required to provide a 2½ foot per second flushing velocity.

FLOW REQUIREMENTS FOR FLUSHING

Pipe Diameter in Inches	Flow in Gallons per Minute
4 inch	100
6 inch	220
8 inch	390
10 inch	610
12 inch	880
16 inch	1,567
18 inch	1,980
20 inch	2,450
24 inch	3,525
30 inch	5,507

39.40.080. Disinfection of Culinary Water Lines.

A. Cleaning. The pipe shall be clean prior to disinfection. If in the opinion of the City, contamination is such that it cannot be removed by flushing, the pipe shall be cleaned by mechanical means and then swabbed with a 1% hypochlorite disinfection solution.

B. Methods. All culinary water pipeline shall be disinfected as outlined in AWWA C651 by one of the following methods:

1. *Tablet Method*. The tablet method shall consist of placing calcium hypochlorite tablets at the specified rate in the main during construction at the upstream end of each section of pipe. The tablet shall be attached with an adhesive, such as Permatex No. 1 or **equal equivalent as approved by the City Engineer or his/her designee**. The line shall then be filled slowly (velocities less than 1 ft/sec), expelling all air pockets and maintaining the disinfection solution in the line for at least 24 hours, 48 hours if the water temperature is less than 41° F. The disinfection solution shall have a concentration of at least 25 mg/l of available chlorine.
2. *Continuous Feed Method*. The continuous feed shall be done exactly as outlined in AWWA C651

and shall have a twenty-five mg/l available Chlorine after 24 hours.

Under both methods the Contractor shall not be allowed to flush the line until the chlorine residual test has been passed by the City. If necessary culinary water lines shall be re-chlorinated until satisfactory bacteriological testing is obtained. See Chapter 39.25. Testing and Inspection for testing information.

Chapter 39.45. Pressurized Irrigation.**39.45.010. General.**

- A. Specifications.
- B. Pipe.
- C. Size.
- D. Location.
- E. Unusual Piping and Plumbing.

39.45.020. Installation.

- A. General.
- B. Pipe Cleanliness.
- C. Minimum Cover.
- D. Identification Tape.
- E. Lateral Displacement.
- F. Restraining.
- G. Connections to Existing Pressurized Irrigation Lines.

39.45.030. Pipe and Fittings.

- A. General
- B. Polyvinyl Chloride Pipe (PVC).
- C. Ductile Iron Pipe.
- D. Polyethylene Pipe.
- E. Steel Pipe - Lined and Coated.
- F. Fittings

39.45.040. Valves and Couplings.

- A. General.
- B. Resilient Seated Gate Valve.
- C. Butterfly Valve.
- D. Valve Boxes.
- E. Couplings.
- F. Pressure Regulation Valves.
- G. Tapping Valves.
- H. Air, Vacuum and Release Valves.

39.45.050. Meters, Boxes and Services.

- A. General.
- B. Placement and Location.
- C. Meters and Boxes.
- D. Polyethylene Pipe.

39.45.060. Flushing.

- A. General.
- B. Velocity.

39.45.010. General.

A. Specifications. These specifications cover the installation of pressurized irrigation lines. See Chapter 39.20. for improvement and design requirements, Chapter 39.25. for inspection and testing requirements, and Chapter 39.35. for earthwork and trench requirements. See standard drawings related to pressurized irrigation.

B. Pipe. Polyvinyl chloride (PVC) pipe shall be used for all pressurized irrigation mains unless authorized by the City Engineer or his/her designee.

C. Size. The City **Engineer or his/her designee** must approve the sizes of all proposed pressurized irrigation lines. The minimum size of pressurized irrigation pipe is 4 6 inch

diameter for main lines and 1 inch diameter for services. A dual service shall be 1 1/2" to the service tee.

D. Location. Pressurized irrigation mains shall be located on either the south or west sides of a street 5 feet from the centerline. See standard drawings for utility locations.

E. Unusual Piping and Plumbing. Special and unusual piping and plumbing for equipment or structures are treated as separate items and are not included in these standards.

Tapping tees may only be installed when authorized by the City Engineer or his/her designee and when the existing main is at least one size smaller than the proposed main.

39.45.020. Installation.

A. General. Pressurized irrigation distribution and transmission systems shall be installed according to the requirements and specifications of ~~APWA 02510~~ **APWA 33 11 00 (Water Distribution and Transmission)**. PVC pipe shall also be installed according to the requirements and specifications of AWWA C605.

B. Pipe Cleanliness. All foreign matter or dirt shall be removed from the inside of the pipe before it is placed and it shall be kept clean during and after laying. No debris, tools, or other materials shall be placed in the pipe during laying operations. When laying of pipe is not in progress, the pipe shall be closed by a water-tight plug.

C. Minimum Cover. All pressurized irrigation mains shall have a minimum cover of 2 feet to the top of the pipe.

D. Identification Tape. All pressurized irrigation mains shall be installed with identification tape that meets the requirements and specifications of ~~APWA 02320~~ **APWA 33 05 20 (Backfilling Trenches)**. Tape shall be buried 12 inches below grade.

E. Lateral Displacement. All pipes shall be protected from lateral displacement resulting from impact or unbalanced loading during backfilling operations.

F. Restraining. Either thrust blocks or mechanical restraining devices shall be used for all tees, valves, plugs, caps and bends. Restraining shall be accomplished according to the standard drawings.

G. Connections to Existing Pressurized Irrigation Lines. The Contractor will be responsible to verify actual size, type of material and location of existing utilities in the field. The fittings and materials required for construction must be approved by the City Engineer or his/her designee.

Where fitting sizes, such as tees and crosses, are shown on the plans, those sizes will be used. However, no attempt has been made to show all needed fittings or materials.

39.45.030. Pipe and Fittings.

A. General. Polyvinyl Chloride (PVC) pipe shall be used for all pressurized irrigation mains 24 ~~±~~ inches in diameter and smaller unless otherwise authorized by the City Engineer or his/her designee. Ductile iron or polyethylene pipe shall be used for pressurized irrigation mains larger than 24 ~~±~~ inches in diameter. Only PVC or polyethylene pipe may be used in corrosive soils.

B. Polyvinyl Chloride Pipe (PVC). PVC pipe shall meet the requirements and specifications of ~~APWA 15014~~ **APWA 33 05 07 (Polyvinyl Chloride Pipe)** and AWWA C900, C905 and C909. Only purple, SDR-18 pressure class 150 psi pipe may be used for pressurized irrigation mains.

C. Ductile Iron Pipe. Ductile iron pipe shall meet the standards and specifications of ~~APWA 15014~~ **APWA 33 05 05 (Ductile Iron Pipe)**. Only a pressure class of 150 psi or larger may be used. A tubular purple polyethylene encasement must be installed according to AWWA C105 over all ductile iron pipe and fittings. Flanges, when required, shall meet the requirements and specifications of AWWA C115. Ductile iron may be directed tapped for the use of corporation stops.

D. Polyethylene Pipe. Polyethylene pipe shall meet the standards and specifications of ~~APWA 15013~~ **APWA 33 05 06 (Polyethylene Pipe)**.

E. Steel Pipe - Lined and Coated. Steel pipe shall meet the standards and specifications of ~~APWA 15010~~ **APWA 33 05 09 (Steel Pipe - Lined and Coated)**.

F. Fittings. Use Ductile Iron fittings that conform to the provisions of ANSI/AWWA C110/A21.10 or C153/A21.53 unless otherwise recommended by the manufacturer and authorized by the City Engineer or his/her designee. All PVC pipe being inserted into fittings shall have the bevel end removed. All the bolts and nuts of all fittings shall be greased. All fittings shall have an 8 mil vinyl wrap plastic cover.

39.45.040. Valves and Couplings.

A. General. All valves shall meet the requirements of ~~APWA 02510 and 15030~~ **APWA 33 11 00 (Water Distribution and Transmission) and APWA 33 12 16 (Water Valves)**.

B. Resilient Seated Gate Valve. All valves on 4 inch to 10 inch water mains shall be resilient seated gate valves. Valves shall also be of iron body have non-rising bronze stems and meet the following specifications:

1. Mechanical Joint. When valves are Mechanical Joint, they shall be furnished with all necessary glands, followers, and bolts and nuts to complete installation.
2. Valve Stems. Bronze valve stems shall be interchangeable with stems of the double disc valves of the same size, direction of opening and manufacture.

C. Butterfly Valve. All valves 12 inches and larger shall be butterfly valves which meet the requirements and specifications of ~~APWA 02510, 15030~~ **APWA 33 11 00 (Water Distribution and Transmission) and APWA 33 12 16 (Water Valves)** and the following specifications:

1. General. Valve bodies shall be cast iron, ASTM A-126 Class B. Body ends shall be flanged with facing and drilling in accordance with ANSI B16.1, Class 125; or mechanical joint in accordance with AWWA C111. All mechanical joint end valves shall be furnished complete with joint accessories (bolts, nuts, gaskets, and glands). All valves shall conform with AWWA Standard C-504, Table 3, Laying Lengths for Flanged Valves and Minimum Body Shell Thickness for all Body Types.
2. Disc. Valve disc shall be ductile iron ASTM A-536, grade 65-45-12. Valve disc shall be of the offset design providing 360 degree uninterrupted seating.
3. Shaft Bearings. Shaft bearings shall be contained in the integral hubs of the valve body and shall be self-lubricated sleeve type.
4. Coating. All valves shall be coated with epoxy in conformance to AWWA Standard C-550, latest revision. Interior wetted ferrous surfaces shall be coated a nominal 10 mils thick for long life; and body exterior shall have a minimum of 3 to 4 mils coating thickness in order to provide superior base for field-applied finish coats.

D. Valve Boxes. All buried valves shall be installed complete with two-piece, cast iron, slip type, 5-1/4-inch shaft valve box with drop lid. The lid shall have the word "IRRIGATION" or "DRAIN" according to the standard drawing cast in the metal.

Valves and valve boxes shall be installed where shown on the drawings. Valves and valve boxes shall be set plumb. Valve boxes shall be centered directly over the valve. Valves shall be aligned with property lines where possible. Earth fill shall be carefully tamped around the valve box to a distance of 4 feet on all sides of the box, or to the undisturbed trench face if less than 4 feet. Valves shall have the interiors cleaned of all foreign matter before installation.

All top of valve boxes located in streets shall be installed 1/4 inch below grade. When a 1 inch overlay is required a year after the road construction, the pavement surrounding the valve box shall be neatly cut to form a 30 inch round opening with the valve box centered, and a concrete collar shall be cast around the box. Valve boxes in off-road areas shall extend 6 inches above grade. Lid detail shall be similar to Comco C-6517.

E. Couplings. Couplings shall be equal to the product of Smith-Blair or Dresser with cast iron couplings being used on all cast iron and PVC pipe. Couplings shall be of

the straight, transition, or reducing style as required by the specific installation. All steel fittings and bolts shall be coated with a non-oxide coating and wrapped with polyethylene.

F. Pressure Regulation Valves. Pressure regulation valves (PRV) which are required in a development shall be designed by the Developers engineer and the design shall be submitted to the City Engineer or his/her designee for review and approval prior to starting construction. All PRV's shall be Cla-Val with a 4" bypass, be placed in a concrete vault and have telemetry included.

G. Tapping Valves. Tapping valves may only be used when previously approved by the City Engineer or his/her designee. Tapping saddles with an "O" ring may be used if the water main line to be tapped is larger than the new water main line. Where the tap is the same size as the existing main, cast iron or stainless steel tapping sleeves shall be used, which encase the full perimeter of the pipe. The valve shall be a tapping valve with a guide lip on the flanged side. The opposite side of the valve shall have a mechanical joint connection.

H. Air, Vacuum and Release Valves. Combination air, vacuum and release valves shall be installed according to the standard drawings at high points in the system as required by the City.

39.45.050. Meters, Boxes and Services.

A. General. See the standard drawings for pressurized irrigation services. The minimum size of new pressurized irrigation service lines is 1 inch for single service and 1 1/2" for dual service. Pressurized irrigation services shall be installed after electric services **and shall sit on the opposite side of the lot from any electric type boxes.** Every lot, including both sides of a twin home lot, shall have it's own pressurized irrigation service.

B. Placement and Location. All meters and boxes shall have their location and grade staked prior to installation. No meters or boxes shall be set in sidewalks or driveways. Service taps shall be a minimum of 36 inches apart. No taps will be allowed within 36 inches of the end of the pipe.

Service laterals shall extend perpendicular from the main to the meter or box. For dual pressurized irrigation services, laterals shall extend perpendicular from the main to the tee.

If a meter must be moved it may only be displaced a maximum of 24 inches to either side. If it must be moved more than 24 inches, a new service line must be installed. When a new service line is installed the old corporation stop shall be shut off at the main and the old service line cut two feet from the main.

C. Meters and Boxes. All meters shall be paid for by the developer and purchased by the City. Meter boxes and pressurized irrigation boxes shall be in good repair. They shall not be set at an angle, crushed, or dented. The inside of boxes must be free from obstructions such as dirt, rocks

or debris. Meters shall be installed by the Developer or Contractor.

D. Polyethylene Pipe. Only CTS SDR9 200 psi purple polyethylene pipe shall be use for pressurized irrigation service lines. Pipe damaged by scratches, cuts, kinks or buckled areas shall not be installed.

The bottom of trench shall be flat with no hollows, no lumps and no rock. If these conditions do not occur pipe must be bedded in coarse sand. No rocks shall be allowed within six inches of pipe.

Pipe shall be cut with either a wheel or scissor type tubing cutter with a blade specifically designed for plastic. Cuts shall be square and clean. Cutter manufacturer instructions shall be followed when cutting pipe. All connections shall have stainless steel stiffeners.

There shall be no unnecessary bending of pipe. Taps shall be exactly horizontal to the pressurized irrigation main. If bending cannot be avoided maximum bending radius shall be 25 times the pipe diameter. There shall be no bending within 3 feet of a fixed point and no "S" shape curves.

39.45.060. Flushing.

A. General. All pressurized irrigation lines shall be flushed before placed in service. Flushing shall be accomplished through the end of each line.

B. Velocity. The Contractor shall install a tap sufficient in size to provide for 2 1/2 foot per second flushing velocity in the line. The following is the flow quantity required to provide a 2 1/2 foot per second flushing velocity.

FLOW REQUIREMENTS FOR FLUSHING

Pipe Diameter	Flow in Gallons per Minute
4 inch	100
6 inch	220
8 inch	390
10 inch	610
12 inch	880
16 inch	1,567
18 inch	1,980
20 inch	2,450
24 inch	3,525
30 inch	5,507

Chapter 39.50. Sanitary Sewer.

39.50.010. General.

- A. Specifications.
- B. Pipe.
- C. Size.
- D. Location.
- E. Minimum Slopes.
- F. Sanitary Sewer Lift Stations.
- G. Unusual Piping and Plumbing.

39.50.020. Pipe and Fittings.

- A. General.
- B. Concrete Pipe.
- C. Polyvinyl Chloride Pipe (PVC).

39.50.030. Services.

- A. General.
- B. Clean-outs.

39.50.010. General.

A. Specifications. Sanitary sewer facilities shall meet the requirements and specifications of ~~APWA 02535~~ **APWA 33 31 00 (Sanitary Sewerage Systems)**. These specifications cover the installation of sanitary sewer lines. See Chapter 39.20. for improvement and design requirements, Chapter 39.25. for inspection and testing requirements, and Chapter 39.35. for earthwork and trench requirements. See standard drawings related to sanitary sewers.

B. Pipe. All sanitary sewer pipe 18 inches in diameter and larger shall be reinforced concrete pipe (RCP) unless otherwise approved by City Engineer or his/her designee.

C. Size. The City **Engineer or his/her designee** must approve the sizes of all proposed sanitary sewer lines. Minimum size of pipe is 8 inch diameter for main lines and 4 inch diameter for services.

D. Location. Sanitary Sewer mains shall be located on either the south or west sides of a street 10 feet from the centerline. A maximum of 400 feet of pipe shall be allowed between manholes.

E. Minimum Slopes. Slopes shall be designed to have a 2 foot per second velocity unless otherwise approved by the City Engineer. The following table lists minimum slopes for sanitary sewer for each size of pipe:

MINIMUM SANITARY SEWER SLOPES

Pipe Diameter (inches)	Minimum Slope (%)
4	2.000
6	1.000
8	0.334
10	0.248
12	0.194
14	0.158
15	0.144
16	0.132
18	0.113
21	0.092
24	0.077
27	0.066
30	0.057
36	0.045
48	0.031
54	0.027
60	0.023

F. Sanitary Sewer Lift Stations. Sanitary sewer lift stations which are required in a development shall be designed by the Developer's engineer and the design shall be submitted to the City Engineer or his/her designee for review prior to starting construction. Lift stations will be the wet well / dry well type, will have standby power, proper ventilation, telemetry, and will be designed for large areas, not individual subdivisions.

G. Unusual Piping and Plumbing. Special and unusual piping and plumbing for equipment or structures are treated as separate items and are not included in these standards.

39.50.020. Pipe and Fittings.

A. General. Reinforced concrete pipe shall be used for all sanitary sewer lines larger than 18 ~~36~~ inches in diameter and for all sewer mains of smaller size with less than 2 feet of cover or more than 8 feet of cover. Non-reinforced concrete pipe may be used for pipe sizes with inside diameters smaller than 18 inches. All other sanitary sewer lines shall be constructed with polyvinyl chloride (PVC) pipe.

Pipe buried more than 12 feet deep shall require manufacturing and engineering specifications to be submitted to the City Engineer or his/her designee for written approval.

B. Concrete Pipe. Concrete pipe shall meet the requirements and specifications of ~~APWA 15015~~ **APWA 33 05 02 (Concrete Pipe and Culvert)**. Reinforced concrete pipe (RCP) shall be Class III. Only new pipe may be used unless otherwise authorized by the City Engineer or his/her designee.

C. Polyvinyl Chloride Pipe (PVC). PVC pipe shall meet the requirements and specifications of ~~APWA 15014~~ **APWA 33 05 07 (Polyvinyl Chloride Pipe)** and shall have a minimum rating of SDR-35.

39.50.030. Services.

A. General. All sanitary sewer services shall be connected to existing sanitary sewer mains by use of an **Inline Y or approved equivalent Inserta-Tee brand type connection, and shall be approved by the City Engineer.** ~~Inserta-tee brand connection or an approved equivalent.~~ Sewer services shall extend ~~±~~ **14** feet beyond the back of sidewalk and plugged until connected to a building. The minimum cover of sewer laterals is at 3' 6" at the property line.

B. Clean-outs. There ~~Any~~ shall be no bend in a service line between the main line. ~~and the property line greater than 22.5' needs to have a clean-out.~~ **A clean-out shall be installed on all service lines located at the property line according to Standard drawings. Clean-outs shall be installed every 75 feet on all service lines.**

Chapter 39.55. Storm, Land and Groundwater Drains.

39.55.010. General.

- A. Specifications.
- B. Size.
- C. Location.
- D. Minimum Slopes.
- E. Unusual Piping and Plumbing.
- F. Groundwater Drains.

39.55.020. Pipe and Fittings.

- A. General.
- B. Concrete Pipe.
- C. Polyethylene Pipe.
- D. Polyvinyl Chloride Pipe.
- E. Corrugated Metal Pipe.

39.55.030. Sumps and Appurtenances.

- A. Connecting to Existing Drains Lines.
- B. Sumps.
- C. Inlet and Clean Out Structures.
- D. Headwalls.

39.55.040. Retention/Detention Basins.

- A. General
- B. Retention Basins.
- C. Detention Basins.

39.55.010. General.

A. Specifications. Storm, land and groundwater drain facilities shall meet the requirements and specifications of ~~APWA 02630~~ **APWA 33 41 00 (Storm Drainage Systems)**. These specifications cover the installation of storm, land and groundwater lines. See Chapter 39.20. for improvement and design requirements, Chapter 39.25. for inspection and testing requirements, and Chapter 39.35. for earthwork and trench requirements. See standard drawings related to storm, land and groundwater drains. **Land and groundwater drains shall be approved by the City Engineer and shall be installed lower in elevation than the sewer mainline.**

B. Size. The City **Engineer or his/her designee** must approve the sizes of all proposed drain lines. **The** minimum size of pipe is **15" 12"** diameter.

C. Location. Drain lines shall be located along the centerline of the street. A maximum of 500 feet of pipe shall be allowed between manholes.

D. Minimum Slopes. Slopes shall be designed to have a 2 foot per second velocity unless otherwise approved by the City Engineer. The following table lists minimum slopes for drain lines for each size of pipe:

MINIMUM DRAIN LINE SLOPES

Pipe Diameter (inches)	Minimum Slope (%)
12	0.194
14	0.158
15	0.144
16	0.132
18	0.113
21	0.092
24	0.077
27	0.066
30	0.057
36	0.045
48	0.031
54	0.027
60	0.023

E. Unusual Piping and Plumbing. Special and unusual piping and plumbing for equipment or structures are treated as separate items and are not included in these standards.

F. Groundwater Drains. All plans for groundwater drains must be designed and stamped by a licensed professional **civil engineer in the State of Utah**. Only rigid pipe may be used.

39.55.020. Pipe and Fittings.

A. General. Reinforced concrete pipe shall be used for all **main** drain lines **larger than 15" 36"** or larger in diameter and for all drain lines of smaller size with less than 2 feet of cover or more than 8 feet of cover. Non-reinforced concrete pipe may be used for pipe sizes with inside diameters smaller than 18 inches. Corrugated metal pipe (CMP) may only be used when authorized by the City Engineer or his/her designee.

B. Concrete Pipe. Concrete pipe shall meet the requirements and specifications of ~~APWA 15015~~ **APWA 33 05 02 (Concrete Pipe and Culvert)**. Reinforced concrete pipe (RCP) shall be Class III. Only new pipe may be used unless otherwise authorized by the City Engineer or his/her designee.

C. Polyethylene Pipe. Polyethylene pipe shall meet the requirements and specifications of ~~APWA 15013~~

~~APWA 33 05 06 (Polyethylene Pipe) Type S for storm drains and Type SP for land or groundwater drains.~~

~~D. Polyvinyl Chloride Pipe (PVC). PVC pipe shall meet the requirements and specifications of APWA 15014 APWA 33 05 07 (Polyvinyl Chloride Pipe).~~

~~E. Corrugated Metal Pipe (CMP). CMP shall meet the requirements and specifications of APWA 15019 APWA 33 05 04 (Corrugated Metal Pipe).~~

39.55.030. Sumps, and Appurtenances.

~~A. Connecting to Existing Storm. Manholes and sumps used to connect proposed storm drain to existing storm drain shall be plumb and centered on the existing storm drain. The new pipe shall be placed against the existing pipe at the elevation designated by the project engineer and the base poured as specified above. Care shall be taken not to disturb the alignment of the existing storm drain during the excavation procedure. Any damage to the existing storm drain shall be repaired.~~

~~A. Connecting to Existing Storm. Manholes and sumps used to connect proposed storm drain to existing storm drain shall be plumb and centered on the existing storm drain. The new pipe shall be placed against the existing pipe at the elevation designated by the project engineer and the base poured as specified above. Care shall be taken not to disturb the alignment of the existing storm drain during the excavation procedure. Any damage to the existing storm drain shall be repaired.~~

~~B. Sumps. New sumps shall not be allowed within a street's ROW. If the sump is located in an area where the earth is stratified with gravel layers, care shall be taken during backfill to be sure that these layers are not sealed off from the sump beginning 4 feet below the bottom of the sump up to the top of the sub-grade.~~

~~After backfilling is completed, the entire excavation shall be thoroughly flooded to insure that settlement is complete. Grates shall be set in place and adjusted for final elevation and alignment.~~

Sumps may only be constructed of reinforced concrete, precast sections and shall meet the requirements of ASTM C478-73. Sumps shall have eccentric lids to ensure adjustments in alignment.

C. Inlet and Clean Out Structures. Surface water must enter the City storm drain system through standard City inlet boxes. In no case may water inlet directly into storm manholes, clean-outs, or sumps. Inlets and clean out structures shall not exceed 500 ft spacing.

All inlet and clean out structures shall be reinforced concrete boxes. They may be precast or cast-in-place. Grate and Frame Material. All castings shall be of ASTM A-48, Class 35 iron free from blowholes and shrinkage defects. Castings shall be free from fins and burrs and shall be shot-blasted to remove sand and other foreign matter. Freedom from cracks and defects shall be ascertained by the engineer prior to installation.

D. Headwalls. A headwall shall be installed at all ditch to pipe transitions. Headwall designs must be stamped by a licensed professional civil engineer in the State of Utah and approved by the City Engineer or his/her designee.

39.55.040. Retention/Detention Basins.

A. General. Basin designs shall be designed with the following side depths and slopes:

Depth	Slope
18"	2:1
3'	3:1
Above 3'	4:1

~~B. Retention Basins. All retention basins shall have a freeboard of 12 inches. Design of retention basins shall be according to the Storm Water Drainage Design Manual. All retention basins shall be constructed with a maximum water depth of 12 inches. Detained water from a 24 hour long 25 year storm event must drain completely within 12 hours.~~ All retention basins shall have a series of interconnected sumps connected to curb inlet boxes or storm drain main lines. All retention basins shall be landscaped in accordance with City Standards.

All retention basins shall be constructed for drainage areas designated in the Storm Drain Master Plan. ~~general plan.~~ Basins for smaller areas may be allowed only with prior written approval of the City Engineer or his/her designee.

C. Detention Basins. All detention basins shall have 12 inches of freeboard. Design of detention basins shall be according to the Storm Water Drainage Design Manual. ~~All detention basins shall be constructed with a maximum water depth of 18 inches, with that depth remaining for no longer than a 6 hour period.~~ Detention basins may be constructed in landscape or parking areas. Each detention basin shall have an outlet to the City storm drain system.

Chapter 39.60. Streets and Pavements.

39.60.010. General.

- A. Street Designations.
- B. Time Limitation after Curb and Gutter.
- C. Geotextiles, Geogrids and Geocomposites.
- D. Pavers.
- E. Painted Traffic Lines and Markings.
- F. Traffic Barriers.
- G. Delineators.

39.60.020. Street Section.

- A. Soils Investigation.
- B. Pavement Section.
- C. Road-base Section.
- D. Sub-base Section.
- E. Grading.

39.60.030. Trail Section.

- A. General.
- B. Survey.
- C. Weed Abatement.
- D. Geotextile Fence.
- E. Sub-grade.
- F. Weed Barrier.
- G. Limestone Crusher Fines.
- H. Trial Markings
- I. Clean-up.

39.60.040. Bituminous Surface Course.

- A. Paving Asphalts.
- B. Asphalt Concrete.
- C. Prime Coat.
- D. Tack Coat.
- E. Overlays and Patcher.
- F. Slurry Seal.
- G. Chip Seal.
- H. Micro-Surfacing.
- I. Pavement Crack Seal

39.60.010. General.

- A. Street Designations. Street designations include: local streets, ~~minor and major~~ collector streets and arterial streets. Designations shall be assigned by the City.
- B. Time Limitation after Curb and Gutter. Pavement must be finished within 45 days of the placement of curb and gutter unless an extension is granted by the City Engineer
- C. Geotextiles, Geogrids and Geocomposites. All geotextile work shall meet the requirements and specifications of ~~APWA 02075 and 02745~~ **APWA 31 05 19 (Geotextiles) and APWA 32 12 16 (Plant-Mix Asphalt Paving).** Geogrid and geocomposite work shall meet the requirements and specifications of ~~APWA 02076 and 02745~~ **APWA 31 05 21 (Geogrids/Geocomposites) and APWA 32 12 16 (Plant-Mix Asphalt Paving).**
- D. Pavers. Pavers and installation shall meet the requirements and specifications of ~~APWA 02782 and 02783~~ **APWA 32 14 13 (Precast Concrete Unit Paving) and APWA**

32 14 16 (Brick Unit Paving). See standard drawing: Precast Concrete Pavers.

E. Painted Traffic Lines and Markings. Painted traffic lines and markings shall meet the requirements and specifications of ~~APWA 02765~~ **APWA 32 17 23 (Pavement Markings)** and the MUTCD.

F. Vehicle Barriers. Vehicle barriers shall meet the requirements and specifications of ~~APWA 02844~~ **APWA 34 71 13 (Vehicle Barriers)** and the MUTCD.

G. Vehicle Delineators. Vehicle delineators shall meet the requirements and specifications of ~~APWA 02842~~ **APWA 34 71 19 (Vehicle Delineators)** and the MUTCD.

39.60.020. Street Cross Section.

A. Soils Investigation. A soils investigation shall be performed for all new roads and those roads for which work will be performed. The results of this investigation and a design of the road cross section shall be submitted to and accepted by the City Engineer or his/her designee.

The following guidelines shall be used as a minimum requirement for street cross sections. They should be used unless the soils investigation indicates they are not adequate. Any variations from these standards must be approved by the City Engineer or his/her designee.

B. Pavement Section. All roads shall be paved with asphalt concrete according to City standards unless authorized by the City Engineer or his/her designee. The following table shall be used for minimum pavement depths for each type of pavement application:

PAVEMENT COURSE THICKNESS

Application	Minimum Pavement Thickness (inches)
Parking Lots and Driveways	3 2 ¹ / ₂
Local Streets	3 inch + preservation coat after 1 year 2 1/2 + 1 inch overlay after 1 year
Commercial Local	4 inch + preservation coat after 1 year
Collector Streets	4 inch + preservation coat after 1 year 3 + 1 inch overlay after 1 year
Arterial Streets	5 inch + preservation coat after 1 year 4 + 1 inch overlay after 1 year

Pavement shall be a minimum 3 inches thick within 30 feet of a cross gutter. Streets shall have a **preservation coat installed** ~~1 inch overlay~~ 1 year after the end of construction inspection.

C. Road-base Section. All roads shall have a minimum 8 inches of road-base under the pavement section. Road-base shall be an untreated base course

installed according to City standards. See Chapter 39.35. Earthwork and Trenching. Road-base shall be finished to a smooth uniform line and grade.

D. Sub-base Section. All sub-base shall be an engineered fill installed according to City standards. See Chapter 39.35. Earthwork and Trenching. Sub-base shall be finished to a smooth uniform line and grade. The thicker section shall be used in the case where CBR may be in conflict. The following table shall be used for minimum sub-base course thicknesses for the following California Bearing Ratio (CBR) values of sub-grade:

PARKING LOTS AND DRIVEWAYS
MINIMUM SUB-BASE COURSE THICKNESSES

Sub-grade CBR	Minimum Sub-base Thickness (inches)
Less than 2	12
2 to 8	8
More than 8	No Sub-base Required

LOCAL STREET
MINIMUM SUB-BASE COURSE THICKNESS

Sub-grade CBR	Minimum Sub-base Thickness (inches)
Less than 2	15
2 to 3	12
3 to 10	8
More than 10	No Sub-base Required

COLLECTOR STREET
MINIMUM SUB-BASE COURSE THICKNESS

Sub-grade CBR	Minimum Sub-base Thickness (inches)
Less than 2	18
2 to 3	15
3 to 5	12
5 to 15	8
More than 15	No Sub-base Required

ARTERIAL STREET
MINIMUM SUB-BASE COURSE THICKNESS

Sub-grade CBR	Minimum Sub-base Thickness (inches)
Less than 2.5	24
2.5 to 3.5	18
3.5 to 6	12
6 to 25	8
More than 25	No Sub-base Required

E. Grading. The sub-grade, sub-base, and road base shall all be graded to an engineered red-head and accepted by the City. Red-heads shall be placed every 50 feet at the crown of the road. If the distance between red-heads and edge of pavement exceeds 25 feet additional redheads shall be installed half way between the crown and edge of pavement.

39.60.030. Trail Section.

A. General. A soils investigation shall be performed for all new trails. The results of this investigation and a design of the trail section shall be submitted to and accepted by the City Engineer or his/her designee.

The following guidelines shall be used as a minimum requirement for trail cross sections. They should be used unless the soils investigation indicates they are not adequate. Any variations from these standards must be approved by the City Engineer or his/her designee. All trail materials shall be placed according to City standards.

1. Engineered Fill. Compacted engineered fill shall be placed in all areas where fills are required to meet grade or the requirements of the soils investigation.
2. Untreated Base Course. 6 inches of compacted untreated base course shall be placed under the surface course of all trails.
3. Bituminous Surface Course. 2 1/2 inches of APWA AC-20-DM-1/2 bituminous surface course shall be placed across 10 feet of the trail section.
4. Limestone Crusher Fines. When required, 2 1/2 inches of limestone crusher fines shall be placed along the edges of the trails to the top of the bituminous surface course.

B. Survey. Both sides of a trail shall be laid out by a survey and approved by the City before construction. Lath shall be placed at 100 foot intervals and at bends and obstacles the trail comes near.

C. Weed Abatement. All weeds shall be sprayed and killed with Roundup or an approved equivalent one week

before any work may be performed, and within 3 weeks of the placement of untreated base course.

D. Geotextile Silt Fence. An ~~APWA 02075~~ **APWA 31 05 19 (Geotextiles)** silt fence shall be installed along the limits of the trail construction at hillsides and river embankments.

E. Sub-grade. The sub-grade shall be grubbed of all trees, bushes and other organic matter. Sub-grade shall be graded to meet the following A.D.A. requirements for walkways:

1. *Maximum Slope*. Sub-grade shall not have a slope greater than 8.33%.
2. *Maximum Run for Steep Slopes*. For slopes between 5.00% and 6.25% the maximum run shall be 40 feet. For slopes between 6.25% and 8.33% the maximum run shall be 30 feet.

F. Weed Barrier. Weed barrier geotextile shall meet the requirements and specifications of ~~APWA 02075~~ **APWA 31 05 19 (Geotextiles)**.

G. Limestone Crusher Fines. The compacted limestone crusher fines shall meet the following gradation:

LIMESTONE CRUSHER FINES GRADATION

Sieve	Passing
3/8 inch	100%
No. 4	70 to 90%
No. 10	30 to 70%
No. 40	5 to 30%
No. 200	5 to 15%

H. Trail Marking. Trail lanes shall be delineated by a center single dashed yellow line. Painted traffic lines and markings shall meet the requirements and specifications of **APWA 32 17 23 (Pavement Markings)** and the MUTCD.

I. Clean-up. Upon completion of the trail section all windrows, survey and construction debris shall be removed from along the edges of the trail.

39.60.040. Bituminous Surface Course.

A. Paving Asphalts. Paving asphalts shall meet the requirements and specifications of ~~APWA 02703~~ **APWA 32 12 03 (Paving Asphalts)**. Recycled asphalt (RA) content may not exceed 25% in any mix design.

B. Asphalt Concrete. Asphalt concrete shall meet the specifications and requirements of ~~APWA 02705 Asphalt Concrete, 02745 Hot-Mix Asphalt Concrete Paving and 02747 Cold-Mix Asphalt Concrete Paving.~~ **APWA 32 12 05 (Asphalt Concrete), APWA 32 12 16 (Plant-Mix Asphalt**

Paving) and APWA 32 12 17 (Cold-Mix Asphalt Paving). Use ~~PG 64-22 AC-20-DM-3/4~~ unless otherwise specified.

Cold-mix asphalt concrete shall only be installed when allowed by the City. All cold-mix asphalt concrete shall be replaced with hot-mix within 30 days of when it becomes available.

Superpave performance graded asphalt concrete that meets the specifications and requirements ~~APWA 02706~~ **APWA 32 12 06 (Superpave)** shall be used in all arterial streets. All other streets and asphalt concrete applications shall meet the specifications and requirements of the APWA medium traffic classification.

C. Prime Coat. Prime coat only as required by the plans or the City. Prime coat shall meet the requirements and specifications of ~~APWA 02708~~ **APWA 32 12 13 (Prime Coat)**.

D. Tack Coat. Install tack coat as required and according to ~~APWA 02709~~ **APWA 32 12 14 (Tack Coat)**.

E. Overlays and Patches. Use ~~APWA PG 64-22 AC-20-DM-1/2~~ for overlays less than 2 inches thick. Use ~~APWA PG 64-22 AC-20-DM-3/4~~ for overlays 2 inches thick or greater. Use SS-1 emulsified asphalt tack coat.

F. Slurry Seal. Slurry seals shall meet the requirements and specifications of ~~APWA 02785~~ **APWA 32 01 13 (Slurry Seal)**. **The type of slurry seal applied to a City street shall be approved and specified by the City Engineer. Only type SS-1 asphalt slurry seals shall be applied to City streets**

G. Chip Seal. Chip seals shall meet the requirements and specifications of ~~APWA 02786~~ **APWA 32 01 14 (Chip Seal)**.

H. Micro-Surfacing. Micro-surfacing shall meet the requirements and specifications of ~~APWA 02787~~ **APWA 32 01 15 (Micro-Surface Seal)**.

I. Pavement Crack Seal. Pavement crack seals shall meet the requirements and specifications of ~~APWA 02975~~ **APWA 32 01 17 (Pavement Crack Seal)**.

Chapter 39.65. Portland Cement Concrete and Masonry Work.

39.65.010. General.

- A. Specifications.
- B. Allowable Grades.
- C. American Disabilities Act (ADA) Requirements.
- D. Slip Forming.
- E. Combination Curb, Gutter, and Sidewalk
- F. Cold Weather Concrete.
- G. Debris in Gutters.
- H. Sidewalk.
- I. Drive Approaches.
- J. Protection of Wet Concrete.
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39.65.020. Installation.

- A. Cutting Pavement.
- B. Forms and Joints.
- C. Base Material.
- D. Mixing and Conveying.
- E. Finishing.
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39.65.030. Materials.

- A. Coarse Aggregate.
- B. Fine Aggregate.
- C. Cement.
- D. Water.

39.65.040. Concrete Mixes.

- A. Mix Design.
- B. Proportioning.
- C. Control.
- D. Water Adjustments.

39.65.050. Masonry.

- A. General.

39.65.010. General.

A. Specifications. These specifications cover the installation of concrete work including but not limited to curbs, gutters, sidewalks, boxes, and thrust blocks. All concrete work shall meet the requirements and specifications of APWA Division 03 Concrete and related sections. Concrete driveway, sidewalk, curb and gutter work shall meet the requirements and specifications of ~~APWA 02770~~ **APWA 32 16 13 (Driveway, Sidewalk, Curb, Gutter)**. See Chapter 39.20. for improvement and design requirements, Chapter 39.25. for inspection and testing requirements, and Chapter 39.35. for earthwork and trench requirements. Also, see standard drawings related to concrete work.

All concrete work shall be constructed where indicated on the plans or as directed by the project engineer and shall conform in all respects to the specified lines, grades, and dimensions and City standards.

B. Allowable Grades. The minimum grade allowed for any gutter is 0.45%. See Chapter 39.20. Improvement and

Design Requirements for maximum allowable grades of City streets.

C. Americans with Disabilities Act (ADA)

Requirements. All pedestrian facilities will conform to the current federal ADA standards.

D. Slip Forming. In each drive approach and at each pedestrian ramp, 12 inch #4 rebars shall be place at 24 inches on center with 4 inches extending into the curb, 2 ½ inches below the top back of curb.

E. Combination Curb, Gutter, and Sidewalk.

Combination curb, gutter, and sidewalk will not be allowed unless authorized by the City Engineer or his/her designee.

F. Cold Weather Concrete. Concrete shall not be placed when a descending air temperature in the shade and away from artificial heat falls below 35°F. Concrete shall not be poured on frozen ground. Where high temperatures are likely to descend below 32°F, concrete shall be covered or otherwise protected against freezing. No calcium based add mixtures may be used. Any other add mixtures must be approved by the City Engineer or his/her designee.

If concrete is not protected by insulation blankets for 72 hours following installation and the temperature drops below 45 degrees a pay factor of 0.50 shall apply.

G. Debris in Gutters. Once curb and gutter and surface course is in place they shall be kept as clean as possible. Dirt and gravel will not be placed in gutter or on street. Gutter will flow freely at all times.

H. Sidewalk. When equipment is required to cross over sidewalk, bridging will be provided to protect concrete.

I. Drive Approaches. All concrete for a drive approach shall be 5 inches thick in the public right-of-way.

J. Protection of Wet Concrete. The Contractor shall be responsible to protect wet concrete. Any concrete that is vandalized before setting up shall be replaced at the contractor's expense.

K. Repair. When authorized by the City Engineer or his/her designee, Contractor may repair concrete damage with Concrete Solution's Ultra Surface Concrete Polymer installed to manufacturer's specifications or an equivalent that is approved by the City Engineer or his/her designee.

39.65.020. Installation.

A. Cutting Pavement. When replacing gutter the pavement shall be cut along the entire excavation to provide a vertical joint in the surface. Cut shall be a minimum of 12 inches from lip of gutter. A pavement saw shall be used for all pavement cutting. If excavation damages the cut pavement, pavement shall be cut again before patching. All road cuts shall be repaired within 2 working days.

B. Forms and Joints. When pouring concrete along a curve flexible forms with enough stakes to hold the forms at an even curve shall be used.

Curb and gutter contraction joints shall be constructed every 10 feet by using steel templates 1/8 inch in thickness. Sidewalk contraction joints shall meet APWA requirements with the minimum distance between joints being 5 feet.

C. Base Material. A minimum of 4 inches of untreated base course shall be installed under all concrete and shall extend out 1 foot in all directions from concrete unless otherwise specified. Untreated base course shall be compacted and installed according to City standards. See chapter 39.35. Earthwork and Trenches.

D. Mixing and Conveying. Concrete transported in a truck mixer, agitator, or other transportation device shall be discharged at the job and placed in its final position in the forms within 1 hour after the introduction of the mixing water to the cement and the aggregate, or the cement to the aggregate, except that in hot weather or under other conditions contributing to quick stiffening of the concrete, the maximum allowable time may be reduced by the City Engineer or his/her designee. The maximum volume of mixed concrete transported in an agitator shall be in accordance with the specified rating. During adverse weather conditions the City **Engineer or his/her designee** may deem it necessary for the use of a concrete pump truck.

E. Finishing. As soon as the concrete has set sufficiently to retain its shape without support of the face form, the clamps, spreaders and face forms shall be removed. While the concrete is still green, the surface shall be thoroughly floated with a magnesium or moist wooden float to provide an even smooth surface, then broomed lightly.

F. Curing. As soon as possible after final finishing the finished surface shall be coated with a curing compound. The compound shall be an ASTM C-1315 Type 2 curing compound that meets the ~~APWA 03390~~ **APWA 03 39 00 (Concrete Curing)** specifications. The compound shall be applied in accordance with the manufacturer's recommendations. During the months of October through February exposed concrete shall be covered with an insulated curing blanket that meets the ACI 306 specification for 3 days when temperatures remain at 15 degrees Fahrenheit or higher and for 7 days for temperatures below 15 degrees Fahrenheit. Insulated curing blankets shall only be removed during the warmest parts of the day. The curing compound shall then be applied within 24 hours of the blankets being removed.

39.65.030. Materials.

A. Coarse Aggregate. A coarse aggregate shall consist of hard durable particles of a mixture of crushed and natural gravel possessing at least 50% of broken surface area. The coarse aggregate shall be free from substances which are chemically active relative to hydrated cement and shall be subject to particularly the following:

1. Loss on abrasion by Los Angeles Abrasion Test not more than 40% by weight.

2. Loss on exposure to 5 cycles of sodium sulfate soundness test, not more than 8% by weight.
3. Deleterious substances shall not exceed the values in the following table:

PORTLAND CEMENT CONCRETE
COURSE AGGREGATE DELETERIOUS SUBSTANCES

Substance	Maximum % by Weight
Soft Fragments	3.0
Coal Lumps	1.0
Clay Lumps	0.5
Material passing 39 100 Sieve	1.5
Organic Material	0.1
Total for All of the Above	3.0

The maximum size of aggregate to be used shall not exceed 1 1/2 inches in terms of this size definition contained in ASTM Standards except that the maximum size shall not exceed 1/4 of the least dimension of the finished concrete in which the aggregate is to be used.

Coarse aggregate shall be uniformly graded within the following range:

PORTLAND CEMENT CONCRETE
COARSE AGGREGATE GRADATION

Sieve Size	Minimum Retained (%)	Maximum Retained (%)
1 1/2 inch	0	10
3/4 inch	30	70
1/4 inch	75	100
No. 4	95	100

B. Fine Aggregate. Fine aggregate shall consist of clean, hard durable particles of natural sands, subject to the following limitations:

1. Organic Calorimetric Test using sodium hydroxide shall result in a color not darker than Number 2 in the acceptance range.
2. Loss on exposure to 5 cycles of the sodium sulfate soundness tests shall not exceed 8% by weight.
3. Deleterious substances shall not exceed the values in the following table:

PORTLAND CEMENT CONCRETE
FINE AGGREGATE DELETERIOUS SUBSTANCES

Substance	Maximum % by Weight
Soft Fragments	3.0
Coal Lumps	1.0
Material passing 39 100 Sieve	3.0
Micaceous or Flaky Particles	3.0
Total for All of the Above	5.0

Fine aggregate shall be uniformly graded within the following range:

PORTLAND CEMENT CONCRETE
FINE AGGREGATE GRADATION

Sieve Size	Minimum Retained (%)	Maximum Retained (%)
No. 4	0	5
No. 8	0	20
No. 16	20	50
No. 30	50	75
No. 50	75	90
No. 100	95	100

C. Cement. All cement used shall be Type II unless otherwise allowed by the City Engineer or his/her designee. All cement and dry additives shall be stored in damp-proof conditions. Shipments of cement shall be marked and stored in such a manner as to provide positive identification. The supplier shall keep and have available for inspection at all times an accurate record of supplies and use of cement of the various types and shipments. No cement shall be used which has been subject to dampness or exposure.

D. Water. Water used for concrete shall be potable and free from excess salts, organic material, or other deleterious substances. Addition of water to the mixed concrete after specified workability has been obtained will not be allowed, nor shall any concrete be re-tempered or re-mixed.

39.65.040. Concrete Mixes.

A. Mix Design. Concrete mix designs shall meet the following requirements:

PORTLAND CEMENT CONCRETE
MIX DESIGN REQUIREMENTS

Property	Requirement
Cement Content	6.5 Bags per Cubic Yard (Minimum)
28 Day Compressive Strength	4000 psi (Minimum)
Slump Range	1 to 3 inches
Flatwork Slump Range	3 to 4 inches
Air Content	5% to 7%

B. Proportioning. The supplier shall determine proportions by weight of aggregates, cement, additives, and water required to comply with strength, workability, and other requirements detailed herein. Such proportions shall be submitted to the City Engineer or his/her designee in three copies annually along with the following tests on materials and shall be subject to his/her approval.

1. Coarse aggregate
 - a. Source
 - b. Deleterious substances
 - c. Los Angeles Abrasion Test
 - d. Sodium Sulfate Soundness Test
 - e. Sieve
2. Fine aggregate
 - a. Source
 - b. Deleterious substances
 - c. Calorimetric Test for Organics
 - d. Sodium Sulfate Soundness Test
 - e. Sieve and fineness modulus
3. Cement
 - a. Type
 - b. Supplier
 - c. Analysis

Upon approval all concrete shall be prepared in terms of the proportions so approved unless variation becomes necessary by reason of materials or conditions to achieve the requirements of these specifications, in which case such variation shall be approved in writing by the City Engineer or his/her designee. Approval by the engineer of mix proportions shall not relieve the supplier from the responsibility for obtaining the concrete strengths specified or complying will all other provisions of this specification.

C. Control. Measurements of materials except water shall be by weight. Equipment used shall be capable of controlling weight within 1% of each ingredient. Water may be measured either by volume or weight provided that

an accuracy of 1% is maintained. Cement may be assumed to weight 94 pounds per sack but proportioning aggregates for fractional sacks of cement will not be permitted unless the fractional amount is weighed for each batch.

D. Water Adjustments. Compensation for the water contained in the aggregates shall be made at least once daily or as often as inspection of the concrete may indicate that variation from this cause has occurred. The Pycnometer Method of assessing water in aggregate may be used for its determination for the purposes of this paragraph.

39.65.010. Masonry.

A. General. All masonry work shall meet the requirements and specifications of APWA Division 04 Masonry and related sections.

Chapter 39.70. Electrical Service.**39.70.010. General.**

- A. Standards and Specifications.
- B. Construction Costs.
- C. Attaching to Existing City Facilities Prohibited.
- D. Unusual Service Extensions.
- E. Permits and Inspections.
- F. Access to Premises.
- G. Electrical Plan Drawings.
- H. Electrical Box Clearance.

39.70.020. Voltage and Energy Regulation.

- A. Available Voltages.
- B. 3 Phase Service.
- C. Power Factor Correction.
- D. Load Control.
- E. Voltage Control.
- F. Fluctuating Load Limitations.
- G. Penalties.

39.70.030. Materials.

- A. Conduit.
- B. Enclosures.

39.70.040. Installation.

- A. General.
- B. Underground Lines.
- C. Conduit Depths.
- D. Tracer Wire and Pull Strings.
- E. Caution Tape and Stub Markers.
- F. Underground Metal Conduit.
- G. Berms, Slopes, and Hillside Conditions.
- H. Labels.

39.70.050. System Requirements.

- A. Additional Capacity Requirements.
- B. Substations.

39.70.060. Services.

- A. Point of Service.
- B. Service Entrance Requirements.
- C. Underground Service Requirements.

39.70.070. Metering.

- A. General.
- B. Location.
- C. Meter Base.
- D. Commercial Meters.
- E. Location of Multiple Meters.
- F. Meter Location Regarding Remodeling.
- G. Meter Accessibility.
- H. Outdoor Meters for Non-Residential General Service.
- I. Instrument Transformers for Metering.
- J. Current Transformer Cabinet.

39.70.080. Lighting.

- A. General.
- B. Location.
- C. Orientation.
- D. Grounding.
- E. Wiring and Fusing

39.70.010. General.

A. Standards and Specifications. All electrical work shall be installed in accordance with these development standards, the most current edition of the National Electrical Code (NEC) and the National Electric Safety Code (NESC), and applicable State, County and OSHA codes and ordinances.

These specifications cover the installation of the electrical system. See Chapter 39.20. for improvement and design requirements, Chapter 39.25. for inspection and testing requirements, and Chapter 39.35. for earthwork and trench requirements. See standard drawings related to electrical system.

B. Construction Costs. All costs to install or relocate facilities to provide electrical service shall be paid by the Customer.

C. Attaching to Existing City Facilities Prohibited. Customer shall install no wiring or attachments on poles or other equipment of City unless specifically authorized, in writing, by the City.

D. Unusual Service Extensions. Special and unusual service extension requirements for equipment or structures are treated as separate items and are not included in these standards.

E. Permits and Inspections. Service will not be established until all necessary permits have been obtained and not until ~~Customer's~~ ~~Customer's~~ wiring installation has been inspected and approved by the City **Engineer or his/her designee**. The City reserves the right to inspect wiring and to refuse service to any installation that is, in the opinion of the City **Engineer or his/her designee**, unsafe or if the operation of same may be detrimental to the service furnished to other Customers or the City. All conduits shall be inspected prior to backfilling. All concrete street light bases, concrete transformer pads and other required concrete shall be inspected prior to pouring concrete. A compaction test shall be taken by City or an approved engineering firm prior to setting any electrical enclosures, cabinets, or other structures. In addition, a test shall be taken on the concrete used for electrical pole bases, pads.

F. Access to Premises. Any properly identified representative of the City shall, at all reasonable hours, have free access to and from the premises of the ~~Customer~~ **Customer** for the purpose of inspecting Customer's installations and electric equipment and for the purpose of reading, repairing, testing, or removing the City's meter or its other property. When, in the opinion of City **Engineer or his/her designee**, emergency conditions exist with respect to City's service, City's representative shall have immediate and free access to Customer's premises.

G. Electrical Plan Drawings. **Electrical Utility Planner** ~~Utility~~ shall design the electrical system & and provide approved electrical plan drawings. **Requests for any changes to these drawings can be made by** ~~If you would like to request any changes to these drawings, please~~ contacting the **Electrical Utility Planner** ~~electrical~~

~~superintendent designer~~ with ~~your~~ a proposal. Approved electrical drawings must be initialed by an approved electrical division supervisor, and signed by the **Electrical Utility Planner** ~~electrical superintendent~~ in order to be valid for construction of the electrical system improvements. Photo-copies of approved drawings will not be considered valid. Revisions, if needed, must also include the date the revision was approved.

H. Electrical Box Enclosure Working Space & Clearance. All electrical boxes shall have 12 feet clearance to the front and 3 feet clearance to the back and on either side. Secondary pedestals shall only require 3 feet of clearance on all sides. Switchgears shall have 12 feet clearance in front of the doors and 3 feet of clearance on the sides. Meters, metering cabinets & enclosures, service disconnect cabinets & enclosures, & CT cabinets, shall have a minimum of 8 feet of clearance in front of said cabinets & enclosures. All electrical sectionalizers, transformers, switchgear, etc. shall have a clear and level working space around them. The area shall be backfilled and leveled a minimum of 12 feet in all directions from the respective electrical device.

Meters, meter cabinets, services and related electrical cabinets shall not be enclosed by carports, sheds, out buildings, additions or remodels or other such buildings. Spanish Fork Power shall have ready access to such equipment for safety & maintenance. The City reserves the right to disconnect the City electrical service to meterbases, services, etc. if in the opinion of the City the service is inaccessible or unsafe until the service & safety issues are resolved to the City's satisfaction. This may include, but is not limited to; relocating the service, upgrading the service to meet current City codes.

I. Overhead Electrical Power Line Clearances. As set forth in Section 54-8c-1 through Section 54-8c-7 of the Utah Code, no person or thing may be brought within 10 feet of any high voltage overhead power line unless:

The responsible party has notified the Power Department or Utility operating the high voltage line of the intended activity; and

The responsible party and the Power Department or Utility have completed mutually satisfactory safety precautions for the activity; and

The responsible party has made prior arrangements to pay the Power Department or Utility for the mutually satisfactory safety precautions (if applicable)

No building, dwelling, sign, bridge, antennae, or structure shall be constructed, or placed underneath any overhead electrical power lines, and shall meet current NESC and City clearance requirements, both vertically and horizontally, from said power lines. Variances shall only be allowed at the City's discretion.

If existing buildings or structures exist under power lines, those same buildings or structures shall not be modified, remodeled or constructed so as to further encroach upon the clearances from said power lines.

In general, for overhead high voltage open supply conductors operating from 750 volts to 22,000 volts nominal, the space extending from grade level to the height of the conductor vertically and 15 feet horizontally from the further most outside conductor from the pole shall be kept clear from the power lines. Furthermore, for overhead high voltage open supply conductors operating from 22,001 volts to 46,000 volts nominal, the space extending from grade level to the height of the conductor vertically, and 30 feet horizontally from the further most outside conductor from the pole shall be kept clear from the power lines. Open water, swimming pools, combustible materials or hazardous locations may have additional clearances required.

Additional clearances may be required depending on the installation or application.

39.70.020. Voltage and Energy Regulation.

A. Available Voltages. Standard residential service shall be 1 phase, 3 wire, 120/240 volt. Standard commercial and industrial service shall be 3 phase, 4 wire, 120/208Y volt, or 3 phase, 4 wire, 277/480Y volt. Developer must contact the City **Engineer or his/her designee** for the availability of other service options.

City **Engineer or his/her designee** reserves the right to deny a Customer 3-phase service if the City **Engineer or his/her designee** determines that single-phase service will adequately supply Customer's load requirements. City **Engineer or his/her designee** reserves the right to deny a Customer 1-phase service if the City **Engineer or his/her designee** determines 3-phase service is in the best interest and beneficial to the City's electrical system.

B. 3 Phase Service. 3 phase service may, at the City's option, be furnished where 3 phase facilities of adequate capacity are already installed immediately adjacent to the point where service is to be delivered to Customer, or where, as determined by City, it is economically feasible to extend such 3 phase facilities.

City reserves the right to refuse to extend or install 3 phase facilities to serve motors individually rated at 20 HP or less and to furnish only 1 phase service for such motors. In such an event, Customer may elect to install 1 phase to 3 phase conversion equipment to operate 3 phase motors.

C. Power Factor Correction. City reserves the right to require the Customer to install power factor corrective equipment. This equipment shall maintain the power factor on all of Customers electric power meters to not less than 90% lagging at all times.

D. Load Control. The City **Engineer or his/her designee** reserves the right to require **developers** to install equipment to limit load and reduce voltage fluctuations.

E. Voltage Control. Where Customer installs power factor corrective equipment, the City reserves the right to require Customer to install controls and equipment to prevent voltage, frequency, and/or harmonics problems that may be detrimental to other Customers or the City.

F. Fluctuating Load Limitations. Where large fluctuating 1 phase loads, such as spot welders, are involved, the City reserves the right to require such loads to be supplied by means of a 3 phase to a single-phase converter or other similar equipment. All conversion equipment shall be installed, owned, operated and maintained by the Customer.

In the event a separate service or transformer installation or additional transformer capacity is required to adequately serve fluctuating loads (such as X-ray equipment, welders, etc.). Such equipment costs and installations shall be the responsibility of the Customer.

G. Penalties. If, such voltage control equipment is not installed by Customer, Customer may be required to pay a power factor penalty and/or all electric service shall be subject to disconnection as provided by Title 13.44. of the Spanish Fork Municipal Code. Customer's wiring used to supply such fluctuating loads shall be installed in a continuous run of rigid conduit and cable as approved by City

39.70.030. Materials.

A. Materials. Only electrical grade materials and appurtenances shall be used. The materials and appurtenances shall be UL Listed and designed for their purpose.

B. Conduit. All conduits shall be electrical grade conduit. Conduit shall be schedule 40 PVC unless otherwise specified by the City Engineer or his/her designee. Electrical grade rigid metal conduit schedule 40 fiberglass conduit shall be used under collector and arterial streets and for all sweeps over 30 degrees 45 degrees or greater. Fiberglass conduits shall not be used for riser poles. All conduits extending out of the ground outside of an enclosure shall be rigid metal from the elbow up a minimum of 10 feet. All conduits entering into any cabinet, enclosure, vault, or ground sleeve shall have end bells attached to the ends of conduits to protect wire from damage. All buried metal conduit shall be coated with anti-corrosion tape. Tape shall be a minimum of 2 inches wide. Use 3 inch conduit for 1 phase lateral line and a minimum of 4 inch conduit for 3 phase lateral line. Tape shall extend 6" above finished grade. Fiberglass sweeps shall not be used on riser poles, or service entrance conduits.

C. Enclosures. All enclosures including, primary and secondary junction boxes, shall be level. Opening mechanisms and locking devices on all transformer equipment shall be 4 to 6 inches above final grade. Opening mechanisms and locking devices on all primary sectionalizers, switchgear and secondary junction boxes shall be 10 inches above final grade. Only approved enclosures, pads, vaults shall be used.

D. Soils & Compaction. All soils under enclosures shall be approved road base and be compacted to 95% of dry density. The compaction area must extend at least 1 foot past the enclosure in all directions and be a minimum of 1 foot in depth under the enclosure. A compaction test shall be

required before any enclosure, box, sleeve, or pad is set into place. The compaction test shall be taken by the City or by the City's approved engineering firm. If ground sleeves or pads settle, Developer shall be required to re-level to the above specifications. If primary enclosures or transformers settle after being energized, the City shall re-level the equipment at the Developer's expense.

39.70.040. Installation.

A. General. All electrical facilities will be installed by a licensed electrical contractor, or journeyman lineman. A certified journeyman electrician or lineman shall be on site during all conduit installation, cable pulling and connecting of electrical wiring. All electrical installation & equipment shall be installed in a neat and workmanlike manner.

Curb & gutter shall be installed before excavation of electrical trenches. The curb should have property corners pinned in the top of the curb by approved methods. The curb will give reference for proper conduit depths & locations, and proper placement of electrical and communications boxes.

Contractor shall construct all electrical facilities in a development except for the following which shall be completed by the Utility:

1. Pulling high voltage underground cable;
2. Installing high voltage cable terminations;
3. Setting transformers and switch gears (contractor shall furnish & install sectionalizers);
4. Secondary connections connectors shall be connected in transformers (exception: contractor shall connect secondary connectors in 3 phase transformers);
5. All overhead facilities, including extension of risers as shown in the standard drawings.

B. Underground Lines. All new facilities shall be constructed underground unless otherwise authorized by the City. Existing buildings & facilities that have a change of use, or extensive remodeling, may, at the City Engineer or his/her designee's discretion, be required to install underground power lines. No overhead power will be allowed unless required or approved by the Utility.

C. Conduit Depths. High voltage (12.47kV) primary conduits shall always be installed below secondary (600 volts or less) conduits & communications conduits if installed in a joint trench application. No primary high voltage conduits shall be installed at less than 4 feet in depth to top of conduits unless otherwise approved. In general, the following table of depths shall be used for electrical conduit: (Note: depths are to the top of conduits)

Table 39.70.040.C1

ELECTRICAL CONDUIT DEPTHS	
Conduit Size	Depth to Top of Conduit
1 Inch Street Light	4 Feet
2", 2 1/2", 3" Service lateral	4 Feet
3 Inch Secondary	4 Feet
3 Inch Primary	4 5 Feet
4 Inch, 6 Inch Primary	6 Feet*

* Depths may increase depending upon application.

D. Tracer Wire and Pull Strings. A 12 gauge solid THHN tracer wire shall be installed with all stubbed conduits according to standard drawings. All primary conduits shall have a 2500 lb. mule tape in the conduit securely tied off in each pad or enclosure.

E. Identification Tape and Stub Markers. All conduits shall have a caution tape taped directly on the conduit, and another tape buried 12 inches below grade. Tape shall meet the requirements and specifications of APWA 02320. The end of each stubbed conduit, including service laterals, shall be marked to the surface according to the standard drawings.

F. Underground Metal Conduit. All buried metal conduit shall be coated with anti-corrosion protective tape. Tape shall extend 6" above finished grade.

G. Berms, Slopes, and Hillsides. For installation instructions around berms, slopes, and hillsides contact the City electric division.

H. Labels. An imprinted, plastic label shall be securely taped to the end of each conduit run where it emerges into any cabinet or enclosure. The label shall indicate whether the conduit run is primary or secondary, the direction & footage of conduit. The label shall also include the address of where the run ends.

39.70.050. System Requirements.

A. Additional Capacity Requirements. In the event a Customer makes application for additional capacity, subject to provisions of the applicable rate schedule, Customer shall install the necessary transformer capacity, service wires and other equipment required to adequately serve Customer's requirements.

All applications for service involving the furnishing of additional capacity or equipment by the City may be required of the Customer. The application shall state that any service entrance wiring and main switches required for the utilization of such additional capacity to be furnished by Customer, shall be considered as permanent fixtures belonging to the property being served and property except for replacement or enlargement if necessary.

B. Substations. Substation may be required of ~~Customer Consumer~~. **The City reserves the right, where unusual substation capacity or voltage is involved, to require the Customer Consumer to install the necessary complete substation as provided for in City's rate schedule. In such an event, the Customer Consumer will receive the substation ownership discount specified in the applicable rate schedule.**

Where the ~~Customer Consumer~~ furnished the necessary complete substation equipment to take service at primary service voltage, such equipment shall be owned and maintained by the ~~Customer Consumer~~ and shall include the necessary transformers, structure, controls, and protective equipment, and shall be of such quality and construction as meets City approval.

39.70.060. Services

A. Point of Service. The City **Engineer or his/her designee** determines the point of delivery for all developments. City **Engineer or his/her designee** reserves the right to meter service at either primary or secondary voltage. For large or unusual loads, City **Engineer or his/her designee** reserves the right to require ~~Customer Consumer~~ to take service at primary voltage and to require ~~Customer Consumer~~ to furnish the necessary complete substation equipment. In such an event, the substation ownership discount shall apply. The City **Engineer or his/her designee** will decide if multiple buildings, business and residential, or portions of buildings will be metered from one or from multiple metering points. Each building or structure served shall be supplied by only one service. Multiple services are only allowed at the City **Engineer or his/her designee's** discretion.

B. Service Entrance Requirements. The service entrance shall be defined as the facilities that consist of approved service entrance conduit and cable enclosing conductors and appurtenances. Said conductors shall extend from the point of contact with the City's ~~meter installation and thence to and including Customer's~~ **secondary point of service and thence to and including Customer's service entrance safety switch or disconnection means. Customer Consumer shall install all conduit and wire from the building to the pole or transformer according to the City standards.**

1. Service Entrance Safety Switch or Main Disconnect. A residential service safety switch shall be a combination meter base and main disconnect device. ~~A commercial service safety switch shall be an outdoor service disconnect device, which will remain accessible at all times. The meterbase shall be located on the exterior of the dwelling unit and remain accessible at all times.~~ **For commercial & industrial installations a service safety switch shall be an exterior service main disconnect device or devices,**

which will remain accessible at all times. This device shall be a main breaker, but minimum requirement shall be a safety switch, which will disconnect all service power from the premise wiring to the entire facility. The location of the main disconnecting device shall be approved by the City.

2. Identification. (Current NEC*)

* Where a building or structure is supplied by more than one service, or any combination of branch circuits, feeders, and services, a permanent plaque or directory shall be installed at each service disconnect location denoting all other services, feeders, and branch circuits supplying that building or structure and the area served by each.

3. Service Entrance Conductors. All service entrance conductors and any conduit enclosure shall be continuous, unbroken, and completely exposed for external inspection throughout their entire length, extending from said point of contact with City's service wires to the meter socket (or meter cabinet if installed) and thence to Customer's service entry safety switch or main disconnecting means. Service entrance conductor type & size shall meet current NEC, NESC, and City Standards.

Underground service lateral conductors from the City's Secondary service point up to the line side of the main disconnecting means shall be installed, maintained, and owned by the Customer. The City assumes no liability for replacement of secondary service lateral conductors.

C. Underground Residential Service Requirements

1. Conductor*, conduit sizes, & conduit depths
Refer to following table

Table 39.70.060.1C*

Service Size	Service Conductor Size (AWG)	Conduit Size	Conduit Depth (ft)
100 amp	#2 alum.	2"	4'
125 amp	1/0 alum.	2"	4'
150 amp	2/0 alum.	2"	4'
200 amp	4/0 alum.	2 1/2"	4'
201- 400 amps	See Power Dept		

*Table 39.70.060.C Note: The current National Electric Code may supersede these conductor sizes based upon service size. Refer to current NEC for service conductor sizes for other types of conductors & installations.

2. Conduit. Only continuous factory lengths of conduit shall be used. Conduit may be cut or

spliced, however the couplers & bends shall be kept to a minimum. Conduit shall be installed in a neat and workman-line manner. All service lateral conduits shall be inspected prior to backfilling.

3. Materials. Only electrical grade materials shall be used. Rigid metal conduits (RMC) & schedule 40 fiberglass ~~Intermediate metal conduits (IMC)~~ shall be used for any elbows or bends 45 degrees or greater. RMC or schedule 40 fiberglass ~~or IMC~~ shall be coated with an anti-corrosion tape below grade and tape shall extend 6" above finished grade. RMC or schedule 40 fiberglass ~~or IMC~~ shall be used for all above grade service entrance conduits. Customer shall provide service wire from house to junction box, transformer or pole according to City standard drawings.

4. Trenching Service lateral trenches shall be 4' in depth. Trenches shall be as straight as possible from the secondary service point to the Customer disconnect or meterbase. The bottom of the trench shall be as level as possible and free from large rocks & debris. Backfill placed directly on conduits shall be free from large rocks.

5. Service Entrance Conduits Support and Attachments. Service Entrance conduits shall be securely attached to the foundation of house or building by means of unistrut, concrete anchors, and unistrut type clamps. Unistrut shall be securely attached to foundation by a minimum 3/8"x 3" concrete anchors. Unistrut shall be long enough to attach communications conduits, typically 36". Service entrance conduits shall be one continuous, unbroken conduit from the elbow to the point of attachment at the meterbase hub.

6. Location(s) **Note: Refer to 39.70.070. Metering for additional requirements.**

Meter/main disconnect shall be located within the front 6' of the side of a residential dwelling. Meter/main disconnect shall be accessible at all times. Meter/main disconnect shall be kept a minimum of 36" of any natural gas meters, window wells, windows, doors, stairs and any material deemed to be combustible or hazardous. For remodels, service upgrades, building additions or other instances or applications affecting the existing electrical service, meterbase, meter and disconnect, contact the power department for requirements. The service, meter, meterbase, or disconnect may be required to be relocated to meet current Standards and Codes. Meter/main disconnect shall meet any and all applicable NEC, NESC codes. The City Engineer or his/her designee reserves the right to

accept or reject any locations of meterbase/main disconnects.

D. Overhead Residential Service Requirements

1. General
Overhead services shall also include mast knob and service grips. Wiring shall meet load and installation requirements as indicated in the NEC.
2. Service Drop Support and Attachments. For one story buildings, or where conditions will not permit proper ground clearance to be maintained by City's service wires, Customer shall install, at Customer's expense, suitable conduit or service entrance mast pipe or other structure or support that will properly support the City's service drop conductors and to maintain the minimum ground clearance as required by the NESC. If clearances cannot be met, the service may be required to be relocated or otherwise rerouted underground.
3. Service Entrance Weatherhead Clearance. The service entrance weatherhead shall be located so as to meet or to exceed NESC clearance from readily accessible windows, doors, or porches. The weatherhead must also be located so that when the service drop conductors are attached to the building structure or other service drop support, adequate clearance will be maintained away from telephone or other wires, windows, awnings, drainpipes, chimneys, or other obstructions.
4. Service Entrance Mast Pipe. This installation shall be made by Customer, at his/her expense, and shall conform to City's specifications. The service entrance mast pipe shall be of electrical grade galvanized rigid steel ~~or IMC~~ of not less than 2 ½" inch inside diameter and shall be attached to the wall of the building by means of an adequate number of approved fastening devices. All service conduits shall be 2 ½" inches in diameter, or larger.
The mast pipe and/or conduit shall be continuous, extending from the service entrance weatherhead located at the top of the mast pipe to Customer's meter socket base.
The service entrance mast pipe shall extend above the roof surface (through weatherproof roof flashing) so that the point of attachment of City's service wires to the mast pipe will be not less than 18 inches above said roof line, plus such additional height as is necessary so that the point of attachment of City's service wires will maintain minimum ground clearance, specified in the NESC.
5. Service Drop Attachment to Buildings. The Customer will furnish and the City will install the necessary attachment brackets and appurtenances

to attach City's service wires to Customer's service drop termination facilities.

City further reserves the right to require that the installation of the necessary mast pipe or equivalent facilities required supporting City's service wires, be made by Customer during the course of building construction.

Where the exterior of buildings is finished with brick facing, concrete, plastered metal lathe, sheet iron, stucco, tile or similar material, suitable facilities of adequate strength to hold City's wires and attachments, shall be installed by Customer at Customer's expense.

6. Service Drop Conductor Ground Clearance. The service drop conductors must be located at such height as will enable adequate clearance to be maintained through the entire service drop length. The minimum ground clearance shall be as specified by the NESC, but not less than 12 feet over driveways not subject to truck traffic; 16 feet over commercial areas, parking lots and other areas subject to truck traffic; and 22 feet over public streets, alleys and roads. The final height attachment determination shall take into consideration conductor sag due to weather fluctuations & lengths of spans.
7. Service Entrance Conductor Specifications. The service entrance conductors may be either copper or aluminum, and shall be continuous without any joints, splices or connections, extending from the point of connection with service drop conductors to the termination of same at the meter socket or meter cabinet and thence same shall continue without joints, etc., to Customer's service entrance safety switch.
The Customer shall have electrical Contractor provide at the service entrance weatherhead, sufficient excess service entrance conductor length or "tails" (18 inch minimum) so that City can connect same directly to the service drop conductors.
The service entrance installation shall conform in every respect to City's specifications, as to conductor connectors, and the method of making connections and all other related matters involved.
The service entrance conductor size for the ampere load to be carried shall be based on a maximum conductor operating temperature of 75°C (type RH, RHW, XHHW, or equivalent.)

Note: Refer to table Table 39.70.060.1C for service conduit & conductor sizes.

8. Main Breaker or Disconnect. The entrance safety switch or main breaker ampacity shall be not less than the rated ampacity of the service conductors. Other specifications, including conductors, shall conform to the latest edition of the National Electrical Code.
Upon special application, City may permit 2 or 3 wire service entrance installations of less than 100 ampere capacity for signs, etc., where the load requirements, as determined by City, justify the same. In no event will 2 wire service be furnished except at City's option.
9. Temporary Service Drops. For temporary service furnished to individual small single phase loads, such as house trailers, small construction projects (such as house and small buildings, portable tools, etc.) City will install a standard temporary service drop, at Customer's expense. City's General Service Rate shall apply.
Where the temporary service installation requires additional facilities in excess of the previously mentioned standard service drop (such as an extension of City's primary line), such installation will be at the Customers expense.
10. Service to Mobile Homes and Trailer Courts Through One Meter. For service to trailer courts where more than 1 dwelling unit, mobile home, or trailer is supplied through 1 meter, the furnishing of such service shall be provided and installed by the facility owner.
11. Load to be Balanced on Circuits. The Customer shall use reasonable care in designing electric wiring and circuits; also, the connection of the loads to the circuits, so that the loads on the individual phases and circuits of City's service are properly balanced at all times.
12. Temporary Service to be Installed on Customer's Pole. All such temporary service drops shall be supported on a pole or post as approved by City and shall be installed by Customer at his/her expense.

E. Underground Service Requirements for Multi-Family Dwelling Units

1. General. Service lateral conduits from the City's point of secondary service shall be 3 inch minimum for multi-family dwelling units. A load calculation study shall be performed for multi-family dwellings units and submitted to the power department. All other residential service requirements apply.

F. Underground Service Requirements for Commercial & Industrial Applications

1. General. Service entrance conductors & conduits shall be sized according to applicable NEC, NESC codes.

The City shall approve all locations & installations of conduits, service disconnection means, and meters.

- A. All commercial & industrial buildings shall have an accessible, exterior main disconnecting means that is capable of disconnecting (opening) all service entrance conductors from the building or structure premises wiring.
- B. All services rated 1000 amps or more supplied by a 4-wire three phase 277/480 volt wye connected system shall have a ground fault test performed for protection of equipment.
- C. All services, equipment, cabinets, conduits, etc. shall be grounded & bonded according to applicable NEC & City codes.
- D. The service disconnecting means shall be identified as suitable for use as service equipment.
- E. A building or structure may only be served by one service lateral or service drop, unless otherwise approved by the power department.
- F. There shall not be more than 6 service disconnects for each service. Each service shall be permanently marked to identify it as part of the service disconnecting means. All service disconnecting means for each service shall be grouped together.
- G. The center of the operating handle of switch or breaker, when in its highest position, shall not be more than 6 ft. 7 in. above finished grade.

2. Materials. Only electrical grade & listed materials shall be used. Rigid metal conduits (RMC & IMC) shall be used for any elbows or bends 45 degrees or greater. RMC/IMC shall be coated with an anti-corrosion tape below grade and tape shall extend 6" above finished grade. RMC/IMC shall be used for all above grade service entrance conduits. Customer shall provide service wire from building to utility transformer or pole. All electrical equipment, cabinets, panels, etc. shall be listed and approved for the installation.

3. Trenching. Service lateral trenches shall be 4' in depth. Trenches shall be as straight as possible from the secondary service point to the Customer disconnect or meterbase. The bottom of the trench shall be as level as possible and free from large rocks & debris

4. Service Entrance Conduits Support and Attachments. Service Entrance conduits shall be securely attached to the foundation of building by means of unistrut, concrete anchors, unistrut type clamps or other approved methods. Unistrut shall be securely attached to foundation by a minimum 3/8"x 3" concrete anchors. Service entrance conduits shall be one continuous, unbroken conduit from the elbow to the point of attachment at the meterbase, ct cabinet, or main disconnect cabinet. Service lateral conduits shall be installed at a depth of 4 feet to top of conduits. All installations shall be installed in a neat and workman-like manner.

5. Locations. Locations of service lateral conduits shall be approved by City Engineer or his/her designee. Locations of outside main disconnecting equipment shall be approved by City Engineer or his/her designee. Meter/main disconnect shall be accessible at all times. Meter/main disconnect shall be kept a minimum of 36" away from any natural gas meters, window wells, windows, doors, stairs and any material deemed to be combustible. Meter/main disconnect shall meet any and all applicable NEC, NESC codes. The City Engineer or his/her designee reserves the right to accept or reject any locations of meterbase/ main disconnects. If the City Engineer or his/her designee determines the service location is inaccessible or otherwise unsafe, the Customer shall relocate or upgrade service to City standards. The City Engineer or his/her designee further reserves the right to disconnect electrical power to the Customer's service until the service is brought into compliance.

6. Ownership of Conductors. For commercial underground installations the secondary service conductors shall be owned & maintained by the Customer from the secondary connections inside the transformer up to the termination point of the service disconnect. For commercial overhead installations the secondary service conductors shall be owned & maintained up to the overhead secondary connection point. City shall own the overhead drop up to the connections at the service mast.

39.70.070. Metering.

A. General. The City will furnish and install all electric revenue meters. Normally outdoor socket-mounted meters will be used by City whenever practical. The meter base will be furnished and installed by ~~Customer's~~ ~~Consumer's~~ electrical contractor for all normal residential installations. The meterbase with test switch shall be provided by City and installed by ~~Customer's~~ ~~Consumer's~~ electrical contractor for commercial or industrial applications.

If instrument transformers are required, City reserves the right to require ~~Customer~~ to furnish and install a suitable steel cabinet to house City's instrument transformers and accessories. Said cabinet shall contain only the City's metering equipment and shall be equipped so that it can be sealed and locked by the City. The City shall have sole access to this cabinet.

B. Location. The City shall approve the location of service entrance and meter. The following conditions must be met for the location of all meters & services:

1. **Visibility.** All entrance wiring connections shall not be concealed and shall always be in plain view for inspection by City.

2. **Protection.** No meter or service equipment shall be installed in any location where it may be unnecessarily exposed to heat, cold, dampness or other cause of damage, or in any unduly dirty or inaccessible location.

3. **Height.** The meter socket shall be mounted at a height of not less than 4½ feet, no more than 6 feet above finished grade, as the case may be. Where multiple meters are installed, care shall be taken to ensure the lowest meter is no less than 4 ½' and no higher than 6' from finished grade.

When a combination 3 phase and 1 phase service is supplied to the same premises, all meters and service entrance switches shall be at the same location.

C. Meter Base. Residential meter bases shall be furnished and installed by the Contractor according to City standard drawings. No smaller than a 100 amp service entrance will be accepted other than by approval from the ~~Electric Superintendent~~. The meter base shall be kept sealed and under the control of the City at all times.

D. Commercial Meters. Single-phase and three-phase self-contained meter bases shall be installed by the Developer, and shall have bypass capability in the meter base. For details and specific information regarding this requirement, please contact the ~~Electric Metering Office~~ ~~Meter Shop~~. For services rated 200 amps up to 800 amps, the Electric Department will supply the meterbase & test switch for contractor to install. For services rated over 800 amps, contact Electric Department.

The Contractor's portion shall be completely installed, inspected, and the electrical hook-up fee paid before the City will complete the final electrical hookup.

E. Location of Multiple Meters. Where more than one meter is required for a building, such as an apartment house, all of the meter sockets shall be located side by side at an outside location as determined by the City ~~Engineer~~ ~~or his/her designee~~.

F. Meter Location Regarding Remodeling. When remodeling, where 2 or more houses or dwelling units are combined to form one building, the meter socket shall be moved to a single location. Meter and service locations shall first be approved by Power department. Existing meters and services may require relocation to meet current City standards. In all remodeling where the meter is changed or moved, or wiring changes made, outdoor meter sockets and an approved new service entrance shall be installed by ~~Customer~~ ~~Consumer~~ at ~~Customer's~~ ~~Consumer's~~ expense.

G. Meter Accessibility. In the event a structural change is made by the owner that results, in the opinion of City ~~Engineer or his/her designee~~, to be an undesirable meter location, the meter socket, meter cabinet, and/or service entrance installation shall be moved by the ~~Customer~~ ~~Consumer~~ at his/her expense to an accessible location as determined by City.

Whenever the construction of a building on an adjacent lot prevents proper access to any meter, or access to the point of attachment of service drop conductors, or results in inadequate service drop clearance, the ~~Customer~~ ~~Consumer~~ shall move, at ~~Customer's~~ ~~Consumer's~~ expense, the meter socket and service entrance to a location that is

acceptable to City. The meter shall not be enclosed by any portion of a building. The meter shall not be placed under carports or enclosed by sheds, garages, outbuildings or other buildings. The meter shall remain readily accessible to the City at all times.

H. Outdoor Meters for Non-Residential General Service. All single phase meters installed for Non-residential use shall be socket type. The meter socket shall be furnished and installed by ~~Customer~~ ~~Consumer~~ at ~~Customer's~~ ~~Consumer's~~ expense.

I. Instrument Transformer Metering. In all outdoor installations requiring current transformers, whether 1 phase or 3 phase, the ~~Customer~~ ~~Consumer~~ shall provide an approved meter loop for meter connections. The City shall furnish any instrument transformers, meter bases, or other devices required, to properly meter the ~~Customer's~~ ~~Consumer's~~ electrical needs. Such instrument transformers and devices shall be installed by City.

J. Current Transformer Cabinet. Any cabinets required to house said instrument transformers and accessory equipment shall be furnished and installed by ~~Customer~~ ~~Consumer~~ at ~~Customer's~~ ~~Consumer's~~ expense. This requirement applies to all installations. All cabinets shall be approved by City.

Such metering or instrument cabinets are for the exclusive use of City, and shall, at all times, be under the control of, and kept sealed by City.

39.70.080. Lighting.

A. General. The City shall provide the street light poles, fixtures & associated parts to install the street lights. The contractor is responsible for transport of the street lights from the City Public Works Department to their respective developments. Furthermore, the contractor shall be responsible for pouring the concrete bases, assembling and erecting the street lights. All street light bases shall be grouted and a rubbed finish shall be applied to the exposed base.

All local streets, minor & major collectors, and arterial streets shall have the decorative street light as shown in the standard drawings or as designed. Major collectors and arterial street lights shall be a 250 watt high pressure sodium (HPS) fixture. Local streets shall be a 100 watt high pressure sodium fixture. All street light poles on any state road will be 45 foot steel galvanized pole with a 10 foot arm, and a 250 watt H.P.S. fixture, unless otherwise specified by the City. ~~45~~ 25-foot steel galvanized poles with a ~~10~~ 6-foot arm, and either a 100 watt or a 250 watt cobrahead type fixture may be used or substituted for a decorative type pole & fixture at the City's discretion. All fixture types will be of the Luminaire type with 90 degree cutoff lens.

B. Location. In general, street lights will be installed at all intersections except where a four way intersection has an offset of less than 100 feet from another intersection. Street lights for local streets will be installed with a minimum of 300 feet and a maximum of 600 feet between. Any street

that extends more than 600 feet without an intersection shall have street lights placed at equal intervals not to exceed 400 feet. All mid block street lights shall be installed 18 inches from a property line. Collector and arterial streets shall have lights spaced at 250 feet apart on alternating sides of the street. In addition to the typical location design and layout, street light locations may also be designed by the Electrical Department.

Each street light will be installed so that the street light pole is centered in the planter strip or within 18 inches of the sidewalk if no planter strip exists.

C. Orientation. Street lights at intersections of local streets shall aim to the center of the intersection. On collector or arterial streets street lights shall be set at a 90 degree angles at regular intervals determined by the City. The bolt pattern shall be oriented on a diamond to the street.

D. Grounding & Bonding. ~~A ground bonding wire shall be connected from a ground rod in the pole base to the street light pole using NEC, approved methods and a separate ground wire will be ran from the pole base to the closest secondary pedestal or transformer. shall be connected from the rebar "Ufer" rings in the concrete pole base to the street light pole grounding/bonding screw or termination point using NEC approved methods and a separate grounding wire will be installed from the pole to the closest secondary pedestal or transformer. If the street light is fed from a secondary pedestal, and 8 foot by 5/8 inch copper clad ground rod must be installed at te pedestal, and the street light ground will be attached using an NEC approved connector. The grounding conductor shall be terminated with the neutral conductor.~~

E. Wiring & Fusing. A 10 amp in-line fuse & fuse holder shall be installed in the junction box or transformer, on the 120/240 volt ungrounded conductors.

Chapter 39.75. Communication Service.

39.75.010. General.

- A. Standards and Specifications.
- B. Construction Costs.
- C. Attaching to Existing City Facilities Prohibited.
- D. Unusual Service Extensions.
- E. Permits and Inspections.
- F. Access to Premises.
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39.75.020. Materials.

- A. Conduit.
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- A. General.
- B. Underground Lines.
- C. Depth.
- D. Tracer Wire and Pull Strings.
- E. Caution Tape and Stub Markers.
- F. Underground Metal Conduit.
- G. Labels.

39.75.040. Services.

- A. Point of Service.
- B. Underground Service Requirements.

39.75.050. Inside Wiring Recommendations.

- A. General.
- B. Coax wire and fittings.
- C. Home Communications Panel.

39.75.010. General.

A. Standards and Specifications. These specifications cover the installation of the communication system being installed to provide a wide range of communication services to include high speed internet service, cable television, telephone, and metering reading for electric, water, and pressurized irrigation meters, etc., See Chapter 39.20. for improvement and design requirements, Chapter 39.25. for inspection and testing requirements, and Chapter 39.35. for earthwork and trench requirements. See standard drawings related to electrical system.

B. Construction Costs. The underground conduit in to provide communication service shall be paid for by the Developer or ~~Customer~~ ~~Consumer~~. In the event a ~~Customer~~ ~~Consumer~~ or property owner requests relocation of communication facilities, the costs shall be the responsibility of the ~~Customer~~ ~~Consumer~~.

C. Attaching to Existing City Facilities Prohibited. ~~Customer~~ ~~Consumer~~ shall install no wiring or attachments on poles or other equipment of City unless specifically authorized, in writing, by the City.

D. Unusual Service Extensions. Special and unusual service extension requirements for equipment or structures are treated as separate items and are not included in these standards.

E. Permits and Inspections. Service will not be established until all necessary permits have been obtained

and not until ~~Customer's~~ ~~Consumer's~~ wiring installation has been inspected and approved by the City. The City reserves the right to inspect wiring and to refuse service to any installation that is, in the opinion of the City, unsafe or if the operation of same may be detrimental to the service furnished other ~~Customer's~~ ~~Consumer's~~ or the City.

F. Access to Premises. Any properly identified representative of the City shall, at all reasonable hours, have free access to and from the premises of the ~~Customer~~ ~~Consumer~~ for the purpose of inspecting ~~Customer's~~ ~~Consumer's~~ on premise box (OPB) and cable installation for the purpose of repairing, testing, or removing the City's OPB or other City property.

G. Communication Plan Drawings. Utility shall provide communication plan drawings. Requests for any changes to these drawings can be made by contacting the ~~ff~~ ~~you would like to request any changes to these drawings,~~ please contact the energy superintendent Spanish Fork City Community Network (SFCN) superintendent with a proposal. Approved communication drawings must be initialed by an approved energy-SFCN division supervisor, and signed by the energy SFCN superintendent in order to be valid for construction of the communication system improvements. Photo-copies of approved drawings will not be considered valid. Revisions, if needed, must also include the date the revision was approved.

39.75.020. Materials.

A. Conduit. All conduit shall be ~~electrical~~ ~~communication~~ grade PVC conduit or orange SDR 11 HDPE pipe meeting ASTM-3035 specifications unless otherwise specified in these standards or by the City ~~Engineer or his/her designee~~. Rigid metal conduit (RMC) or fiberglass (FG) conduit shall be used under collector and arterial streets. Rigid metal conduits shall be coated with a 2" anit-corrosion tape below grade. Tape shall extend 6" above finished grade. Fiberglass sweeps shall not to used on riser poles.

At no time shall the pipe be deformed to make any bend. The minimum radius for any bend or sweep in the conduit shall be 36 inches. When sweeps are required, they shall be rigid metal or fiberglass. The total number of bends in any conduit run shall not exceed 360 degrees.

B. Enclosures. All enclosures shall be level and set according to utilities construction standards. If ground sleeves or pads settle, Developer shall be required to re-level to the above specifications. The City will provide the SFCN boxes for the developer to install.

39.75.030. Installation.

A. General. Contractor shall construct all communication facilities in a development except for the following which shall be completed by the Utility:

1. Pulling underground or overhead cable;
2. Installing communication cable terminations;
3. Setting of large communications pedestals which

house Nodes, and Fiber Optic Equipment;

4. Installing communication connections and terminations;
5. All overhead facilities, including extension of risers as shown in the standard drawings.

B. Underground Lines. All new facilities shall be constructed underground unless otherwise authorized by the City. No overhead communication lines will be allowed unless required by the Utility.

C. Depth. Conduit depth shall be a minimum of ~~24~~ 18 inches to top of pipe. When installed with electric conduit it shall be installed 6 to 12 inches above electric conduit.

D. Tracer Wire and Pull Strings. A 12 gauge solid ~~THHN~~ THWN tracer wire shall be installed with all stubbed conduits according to standard drawings. Wire shall be pulled tight along the pipe. All fiber and main communication conduits shall have a pull string in the conduit securely tied off in each pad or enclosure.

E. Caution Tape and Stub Markers. All conduits shall have a 3 inch identification tape attached to each conduit and a 6 inch tape buried 12 inches below graded above the conduit. Tape shall read "Caution - SFCN Fiber Optics Buried Below" or "Caution - SFCN CATV Buried Below" as applicable. The end of each stubbed conduit, including service laterals, shall be marked to the surface according to the standard drawings.

F. Underground Metal Conduit. All buried metal conduit shall be coated with 2" corrosion protective tape. Tape shall extend 6" above finished grade. ~~PVC coated rigid metal conduit may be used instead.~~

G. Labels. An imprinted, plastic label shall be securely taped to the end of each conduit run. The label shall indicate whether the conduit run is fiber or coax. The label shall also include the address of where the run ends.

39.75.040 . Services.

A. Point of Service. The City **Engineer or his/her designee will** determine the point of delivery for all developments. The City **Engineer or his/her designee** will decide if multiple buildings, business and residential, or portions of buildings will be serviced using single or multiple distribution unit (MDU) enclosures.

B. Underground Service Requirements. **Customer Consumer** shall, install all conduit from the building to the pole **or pedestal** according to the City standards.

39.75.050. Inside Wiring Recommendations.

A. General. The following information is for informational purposes only, but provides wiring information adequate to facilitate either **AT&T Comcast** or SFCN communication services inside the home.

B. Coax wire and fittings. Only use RG-6 coax cable. The following are recommended specifications for a home communication panel.

1. Coax Wire. Only use RG-6 coax cable.

2. Center Conductor. Center conductor should be copper covered steel center.
3. Dielectric Insulation. Dielectric insulation should be flame retardant polyethylene with a low dissipation factor of 0.00015, a low dielectric constant of 2.3, and foam velocity pf propagation greater than 80 % and manufactured using micro cell technology for greater strength, to resist deformation, and to prevent moisture ingress.
4. Shielding. Shielding should consist of a foil layer which is to be bonded to the insulation with a wire shielding of 60% braid coverage on the outside of the foil shielding. The material for both the braid, and the foil should be all aluminum.
5. Non-Plenum Jacket. Non-plenum jacket should be PVC material, and rated for general indoor use, and must meet NEC article 820 for flame 5 retardant protection.
6. Crimp Fittings. Crimp fittings should incorporate a 360 degree compression type crimp.
7. Splitters. Splitters should be 5-900 Mhz or broader.

C. Home Communications Panel. The following are recommended specifications for a home communication panel.

1. Mounting. The minimum necessary for a communications center would be a simple 2'X2' piece of ½" ply wood securely attached to the wall in the basement, although manufactured panels are available for a more professional, and finished look. The manufactured panels would be a good choice in a finished closet, ~~under the stairs in a furnace room~~, or in other visible areas.
2. Location. The location of the communication center should be readily accessible, either in the furnace or utility room, or under the stairs, in a closet, or other similar area. ~~The consumer You~~ will need access to this panel in order to reset ~~you're their~~ cable modem, network hub, or pre-amp for ~~you're their~~ cable TV where applicable.
3. Electrical Outlet. A standard electrical outlet would need to be adjacent to the communications center to power the cable modem, network hub, or pre-amp when multiple computers, or televisions are used.
4. Wiring. ~~One Two~~ RG-6 wires should be run from the On Premise Box (OPB) to the home communications panel for the internet and ~~one for the~~ cable hookup. An RG-6 wire should be ~~run run~~ from the panel to each cable television outlet. A CAT5 cable should be ~~run run~~ from the panel to each internet access outlet. See standard drawings. It is also recommended that telephony wiring be run out of the panel as well.

Chapter 39.80. Hillside Site Development.

39.80.010. General.

- A. Average Slope-Definition.
- B. Liability.

39.80.020. Reports.

- A. Certified Report Required.
- B. Certified Report Specifications.

39.80.010. General.

A. Average Slope-Definition. For the purpose of this chapter, the definition of “average slope” shall be as follows: The average slope of the parcel of land or any portion thereof shall be computed by applying the formula shown below to the natural slope of the land before any grading is commenced, as determined from a topographic map having a scale of not less than one inch equals 100 feet and a contour interval of not less than 5 feet, where:

$$S = (0.00229 \times I \times L) / A$$

- 0.00229 = A conversion factor of square feet to acres
- S = Average percent slope
- I = Contour interval, in feet
- L = Summation of the length of contour lines, in feet within the subject parcel
- A = Area in acres of the parcel being considered.

B. Liability. The purpose of this chapter is to point out to the owner and/or Developer of any property that the liability and responsibility of such persons to protect the integrity of their own and adjoining properties, existing water courses and utilities lies upon the person doing the development and upon the owner of the property being developed and not upon the city or any other person. The City may require additional information on any development or building which may have potential hazards.

39.80.020. Reports.

A. Certified Report Required. It shall be unlawful for the owner, Developer, or any Contractor or other person to excavate, grade, level, or build upon any lot or property within the city when the average slope of the lot exceeds 10 percent or if such a slope is within 200 feet of the building lot. Nor shall any person grade, level, or improve in any manner any parcel of land which is crossed by a natural or manmade water course or existing utility or has existing or proposed slopes greater than 10 percent, before such person has submitted to the chief building ~~inspector~~ **official** a certified report from a qualified civil engineer licensed in the State of Utah containing the information set forth in the following section.

B. Certified Report Specifications. The certified report required in the previous section shall contain at least the following information:

1. Plat. A plat of the property showing the following:
 - a. Contour lines at 5 foot intervals. Existing contours shall be indicated by dashed lines and proposed contours by solid lines;
 - b. Elevations at the corners of foundations and at the corners of driveways; and
 - c. Show or reference any existing or potential groundwater flows which may cause unstable conditions such as debris flow or slides.
2. Assessment. An assessment of a **licensed** professional civil engineer **in the State of Utah** as to the seriousness of any development problems such as erosion, drainage, flood and geologic hazards or unstable soil conditions and their potential effect on adjoining properties and on any proposed improvements to be built on the property.
3. Mitigation. The proposed method for mitigating the problems noted in the assessment.

Chapter 39.85. Surface Irrigation Systems.

39.85.010. General.

- A. Specifications.
- B. Adopted Policy.
- C. Approval.

39.85.010. General.

A. Specifications. These specifications cover the installation of irrigation systems. See standard specifications for storm, land and groundwater drains for construction standards.

B. Adopted Policy. The irrigation ditch policy, Title 13, requires a Developer to pipe an irrigation ditch if it is on the development or adjacent to the development. If the ditch carries greater than 50 cubic feet per second (~~5 streams~~) average flow the City Council has the discretion to require piping, fencing, and/or landscaping.

Any ditch carrying less than 50 cubic feet per second (~~5 streams~~) will be required to be piped. The Development Review Committee may waive this requirement for commercial and industrial areas.

C. Approval. The City has no direct control over irrigation works and will require written approval from the irrigation company or ditch owner involved. All irrigation system plans shall be prepared by a professional engineer and approved by the City and the irrigation company or ditch owner. Construction shall meet requirements and specifications of the City standards for storm drains unless otherwise authorized by the City Engineer or his/her designee. The irrigation company or ditch owner must accept in writing any work related to surface irrigation systems before the end of construction inspection.

Chapter 39.90.

Landscaping.

39.90.010. General.

- A. Specifications.
- B. Appurtenances.
- C. As-Built Drawings.
- D. Government Regulations.
- E. Source.
- F. Fences and Walls.
- G. Tree Grates.
- H. Vegetation Control.

39.90.020. Lawns and Grasses.

- A. General.
- B. Grading.

39.90.030. Ground Cover.

- A. General.

39.90.040. Trees.

- A. General.
- B. Tree Sizes.
- C. Labels.

39.90.010. General.

A. Specifications. These specifications are for landscape work completed on private property that will become public property.

B. Appurtenances. Any minor items of labor or materials not specifically noted on the drawings or specifications; but obviously necessary for the proper completion of the work, are to be considered as incidental to and are to be included in the contract.

C. As-Built Drawings. The contractor must furnish as-built drawings to the City. These drawings should be updated whenever a change from the design is made to assure accuracy. The drawings must show a record of all departures from the contract drawings that occur during construction. These shall be kept on a clean set of prints of the contract drawings.

The Project manager/Owner will review the "as-built drawings" to verify that changes are being recorded as construction occurs. These drawings and maintenance manuals must be submitted at the time of final inspection or in accordance to the general conditions.

D. Government Regulations. Ship landscape materials with certificates of inspection as required by governmental authorities. Comply with governing regulations applicable to landscape materials.

E. Source. Provide trees and shrubs, and other plants grown in a recognized nursery in accordance with good horticultural practice. Provide healthy, vigorous stock grown under climatic conditions similar to the locality of the project and free of disease, insects, eggs, larvae, and defects such as knots, sun-scale, injuries, abrasions, or disagreement.

Plant Materials and other landscape items will be evaluated according to compliance with drawings,

schedules, and specifications; as well as overall aesthetic quality, grower or supplier reputation, physical inspection, and American Association of Nurseryman Standards (AANS). Select plants that will not be adversely affected by the existing soil chemistry at the planting location..

The source or supplier for all plant materials shall be furnished to the City prior to the delivery of any plant materials on site or stored elsewhere.

F. Fences and Walls. All fences and walls except those for individual single family lots must be approved by the City. Chain link and field wire fencing shall meet the requirements and specifications of ~~APWA 02821 and 02823~~ **APWA 32 31 13 (Chain Link Fences and Gates) and APWA 32 31 16 (Welded Wire Fences and Gates)** respectively. The relocation of fences and gates shall meet the requirements and specifications of ~~APWA 02992~~ **APWA 32 01 10 (Relocate Fences and Gates)** and related sections.

G. Tree Grates. Only 4 foot square D&L O-8644 or approved equivalent grates shall be used. Grates shall be set to grade with the top back and sidewalk. Grates shall be set in metal frame manufactured specifically for grate. Frame shall be set in concrete extending a minimum of 6 inches from sides of frame. Concrete shall be installed to City standards for portland cement concrete.

H. Vegetation Control. Vegetation control shall meet the requirements and specifications of ~~APWA 02363~~ **APWA 31 31 19 (Vegetation Control).**

39.90.020. Lawns and Grasses.

A. General. Lawns and grasses shall meet the requirements and specifications of ~~APWA 02920~~ **APWA 32 92 00 (Turf and Grasses).**

B. Grading. Till soil to a depth of 4 inches and remove rocks and debris over 1 inch in diameter. The elevation of top soil relative to walks, hard surfaces or edges shall be:

1. *Seeded Areas.* 1/2 inches below.
2. *Sodded Areas.* 1 1/2 inches below.

39.90.030. Ground Cover.

A. General. Ground cover shall meet the requirements and specifications of ~~APWA 02930 and 02935~~ **APWA 32 93 13 (Ground Cover) and APWA 32 01 90 (Plant Maintenance).** Install according to APWA plan number 683.

39.90.040. Trees.

A. General. Tree and work relating to trees shall meet the requirements and specifications of ~~APWA 02932, 02933, 02934 and 02935~~ **APWA 32 93 43 (Tree), APWA 32 01 91 (Tree Root Cutting), APWA 32 01 93 (Pruning Trees) and 32 01 90 (Plant Maintenance).** Install according to APWA plan number 681. Use 6 foot posts for any tree staking. Trees may be planted without a certified arborist when authorized by the City **Engineer or his/her designee.**

B. Tree Sizes. City ordinance specifies deciduous trees to be at least 2 inch caliper and evergreen trees to be at least 8 to 10 feet in height. Plants of a larger size may be used pending approval by the City **Engineer or his/her designee**. Sizes of root balls or containers shall be increased proportionately.

C. Labels. Label at least one plant of each variety with a securely attached waterproof tag bearing legible designation of botanical and common name.

Chapter 39.95. Irrigation Sprinkler Systems.

39.95.010. General.

- A. Specifications.
- B. Appurtenances.
- C. Pressure Verification.
- D. Plan Modifications.
- E. As-Built Drawings.
- F. Final Inspection.

39.95.020. Pipe and Fittings.

- A. Pipe.
- B. Main Line Fittings.
- C. Circuit Pipe Fittings.
- D. Sleeves.

39.95.030. Sprinkler Heads.

- A. General.
- B. Spray Heads.
- C. Rotary Heads.

39.95.040. Controller, Valves and Flow Meters.

- A. Controller.
- B. Manual Main Line Isolation Valve.
- C. Manual Circuit Isolation Valve.
- D. Automatic Valves.
- E. Master Valves and Flow Meters.
- F. Auto Drain Valves.
- G. Back Flow Preventer.

H. Stop and Waste Valves.

I. Quick Coupler Valves.

J. Valve Boxes.

K. Control Wire.

39.95.070 . Installation.

- A. Schedule.
- B. Depth and Location.
- C. Trench Backfill Material.
- D. Thrust Blocks.
- E. Flushing.

39.95.010. General.

A. Specifications. These specifications are for landscape work completed on private property that will become public property. All underground irrigation systems shall meet the requirements and specifications of ~~APWA 02810~~ **APWA 32 84 23 (Underground Irrigation Systems)**.

B. Appurtenances. Any minor items of labor or materials not specifically noted on the drawings or specifications; but

obviously necessary for the proper completion of the work, are to be considered as incidental to and are to be included in the contract.

C. Pressure Verification. The Contractor, prior to installing the system, must verify existing water pressure. If there is a failure to obtain the needed pressure or if an excess of pressure exists for normal operation, the Contractor shall contact the City for any adjustments to the system. Failure to report any discrepancies in pressure due to whatever reason, and installation done prior to notification of City Parks Department shall be done at the expense of the Contractor.

D. Plan Modifications. The plans show the general arrangement of all piping. Should local conditions necessitate the rearrangement of some, or if piping can be run to better advantage, the contractor, before proceeding with the work, shall prepare and submit drawings of such to the office of the Spanish Fork City Parks Department Representative and obtain written approval before commencing work shown by these drawings.

E. As-Built Drawings. Before the final inspection is complete, the contractor must furnish as-build drawings. These drawings should be updated on a daily basis to assure accuracy. The drawings must show the location of all valves, pipe, heads, controller control lines, and drain valves used on the job. These drawings and maintenance manuals must be submitted at the time of final inspection or in accordance to the general conditions.

F. Final Inspection. The Contractor shall operate, maintain, and guarantee the irrigation sprinkler system until all landscaping on the project is approved by the City Parks Department at a final inspection. Contractor shall submit manufacturer's technical product maintenance data and installation instructions for irrigation sprinkler system materials and products to the City before final inspection.

39.95.020. Pipe and Fittings.

A. Pipe. Use solvent weld schedule 40 PVC for main line pipe 3 inches in diameter and smaller. Use Class 200 PVC for main line pipe larger than 3 inches in diameter.

B. Main Line Fittings. Use solvent weld schedule 40 PVC fittings for pipe smaller than 3 inches in diameter. All fittings for pipe 3 inch and larger pipe shall be ductile iron, grade 65-45-12 in accordance with ASTM A-536.

Fittings shall have deep bell push on joints with gaskets meeting ASTM F977. Fittings shall be Harco Deep Bell as manufactured by the Hanington Corporation of Lynchburg, VA or approved **equivalent**. Transition gaskets are not allowed.

C. Circuit Pipe Fittings. Use solvent weld schedule 40 PVC fittings.

D. Sleeves. Pipe and control wiring and tubing under walks, roads and other hard surfaces shall be installed in solvent weld Class 40 PVC sleeves of adequate size. Sleeves for pipes shall be a minimum of 3 inches in diameter or one and a half times the size of the pipes

whichever is greater. Sleeves shall be straight and level or less than 2% grade. All wiring shall be placed in it's own conduit. Wire conduit may be ran inside of sprinkler pipe sleeves. Conduit for control wires shall have minimum inside diameters according to the following chart:

MINIMUM SLEEVE CONDUIT SIZES

Number of Wires	Conduit I.D.
1 to 7	1 inch
8 to 11	1 ½ inch
12 to 22	2 inch
23 to 31	2 ½ inch
32 to 36	3 inch

39.95.030. Sprinkler Heads.

A. General. Install according to APWA plan number 621 and 622, but do not install PVC elbow and riser.

B. Spray Heads. All spray type sprinkler heads shall be Rainbird "1800" series or approved **equivalent**. All lawn spray heads shall be installed on swing pipe with two spiral barbed ells.

C. Rotary Heads. All rotary type sprinkler heads shall be Hunter "T" series or approved **equivalent**. All stream rotary and impact heads capable of distributing 10 gallons per minute or more shall be installed on pre-assembled swing joint by Spears or an approved equivalent.

39.95.040. Controller, Valves and Flow Meters.

A. Controller. Controller and pedestal shall be the same type as those used in the City central control system. The controller shall be as described in the irrigation legend on the drawings.

B. Manual Main Line Isolation Valve. See standard drawing for pressure pipe main line valves.

C. Manual Circuit Isolation Valve. Brass ball valve with handle. ~~Install box~~

D. Automatic Valves. Automatic valves shall be Weathermatic electric remote control valves or an approved equivalent. A manual circuit isolation valve shall be installed on the supply side of each automatic valve. Install according to APWA plan number 633, but do not install schedule 80 PVC union.

E. Master Valves and Flow Meters. Master valves and flow meters must be installed on main supply line and/or according to design and must be compatible with the City central control system.

F. Automatic Drain Valves. Install according to APWA plan number 632.

G. Back Flow Preventer. Shall be required on connections to the culinary water system. Install according to APWA standard plan number 631.

H. Stop and Waste Valves. Stop and waste valves shall be Mueller H - 10288 Oraseal or an approved equivalent. Stop and Waste valve shall be of manual type for operation by handle key.

I. Quick Coupler Valves. Quick coupler valves shall be installed with brass riser and pre-manufactured swing joint. At least 2 quick coupler valves shall be installed, one at each end of main line. Valves shall be 1 inch standard.

J. Valve Boxes. Valves shall be located in lawn or planted areas. Avoid locating valves in areas of high pedestrian and vehicular circulation. Valve boxes shall be at finished grade with valve stems 4 inches minimum and 12 inches maximum below top of box and with 3 inches of pea gravel or 3/4 inch minus crushed gravel under the valve. Valve boxes shall be rectangular, heavy duty and green in color. Valve boxes for automatic valves shall be large enough to enclose manual circuit isolation valve and automatic valve.

K. Control Wire. Install wire according to APWA plan number 651. Add two extra blue control wires per controller to the longest run for emergency use and mark it in the control box as an extra wire.

39.95.070 . Installation.

A. Schedule. Contractor shall submit a construction schedule of anticipated work time to facilitate timely visits for review of work. Schedule must be submitted to the City before any landscaping may begin

B. Depth and Location. Lines bordering curbs or sidewalks shall be 6 inches away to allow for maintenance and access to the lines. Control wires must be buried at least 12 inches below finished grade and bundled with a plastic tape every 20 feet.

C. Trench Backfill Material. All trenches shall be backfilled in 12 inch lifts and tamped sufficiently to insure no settling of the surface. No rocks larger than 1 inch shall be allowed within 3 inches of the pipe. The Contractor, in placing the irrigation lines, and appurtenances , may uncover material not suitable for finished grading. This material shall be removed from the site. After the installation of the lines, the finished grading shall be smoothed over and restored to its original condition, using additional topsoil where necessary.

D. Thrust Blocks. All mainlines greater than 2 inches in size shall be installed with thrust blocks wherever a change of direction occurs. Thrust blocks shall be installed as follows:

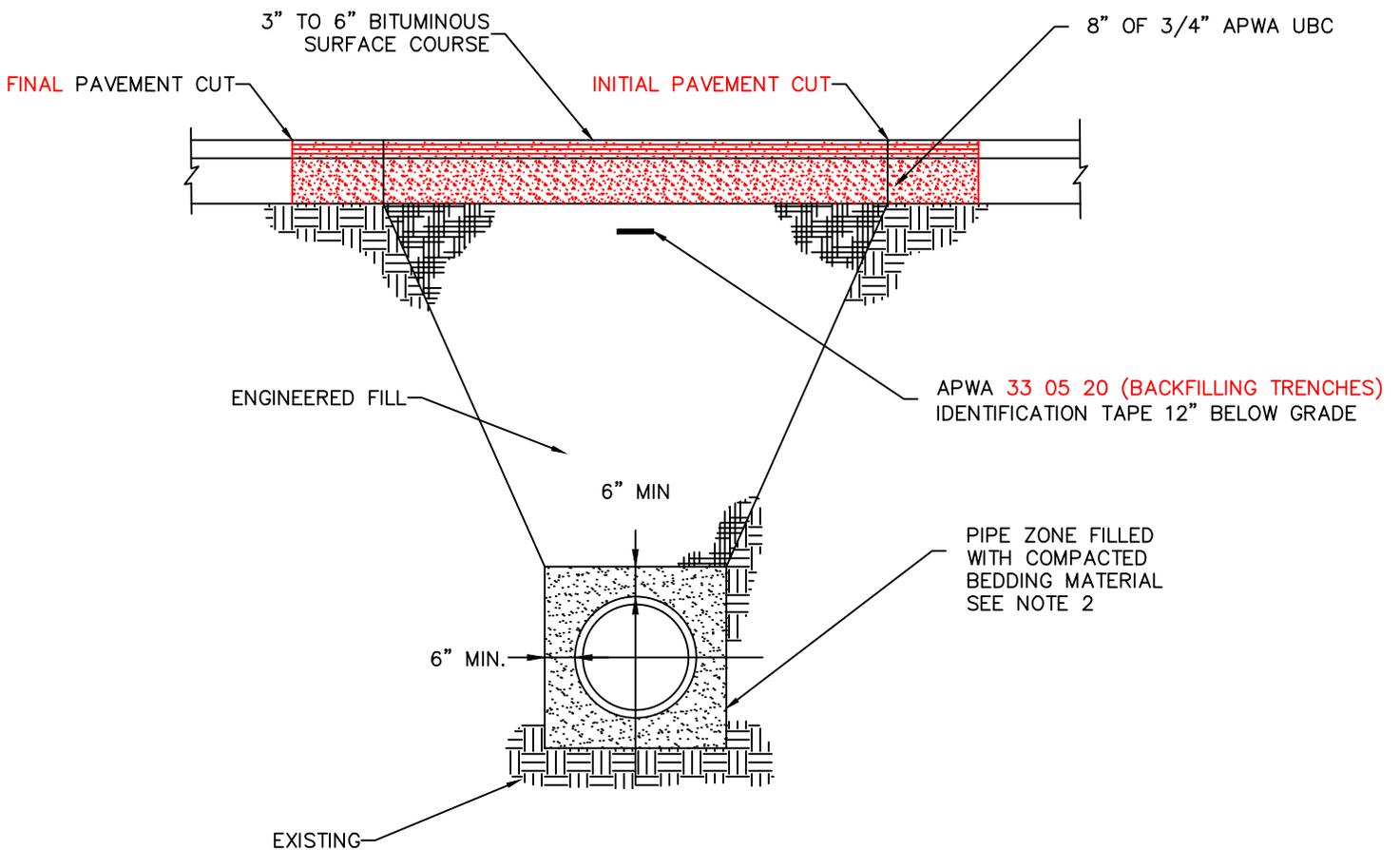
1. Bearing. Bearing area of concrete thrust-block based on 200-PSI pressure and safe soil bearing load of 2,000 pounds per square foot.
2. Concrete blocking shall be cast in place and have a minimum of 1/4 square foot bearing against the fittings.
3. Block shall bear against fittings only and shall be clear of joints.
4. Contractor shall install block adequate to withstand full test pressure as well as to continuously withstand operation pressure under all conditions of service.

Policy 39

CONSTRUCTION AND DEVELOPMENT STANDARDS

Spanish Fork City

E. Flushing. When the pipe lines are connected and the sprinkler risers in place but before any heads are installed, the control valves shall be opened and flushed with a full head of water to clean out the system.



NOTES:

- PAVEMENT CUTS SHALL BE MADE 6 INCHES OUTSIDE THE EDGE OF TRENCH FOR TRENCHES DEEPER THAN 4 FEET.
- BEDDING MATERIAL SHALL EXTEND A MINIMUM OF 3" BELOW THE PIPE. FOR CONCRETE PIPE LARGER THAN 24" I.D. A MINIMUM OF 6" OF BEDDING MATERIAL SHALL BE PLACED BELOW THE PIPE.
- ASPHALT SHALL BE CUT TO THE SPECIFIED WIDTH DURING PIPELINE CONSTRUCTION AND SUBSURFACE RESTORATION. THE FINAL SAW-CUT SHALL BE AN ADDITIONAL 12" WIDER THAN THE EXISTING TRENCH ON EACH SIDE, REMOVING THE ASPHALT AND PROCEEDING WITH THE REMAINDER OF THE RESTORATION.

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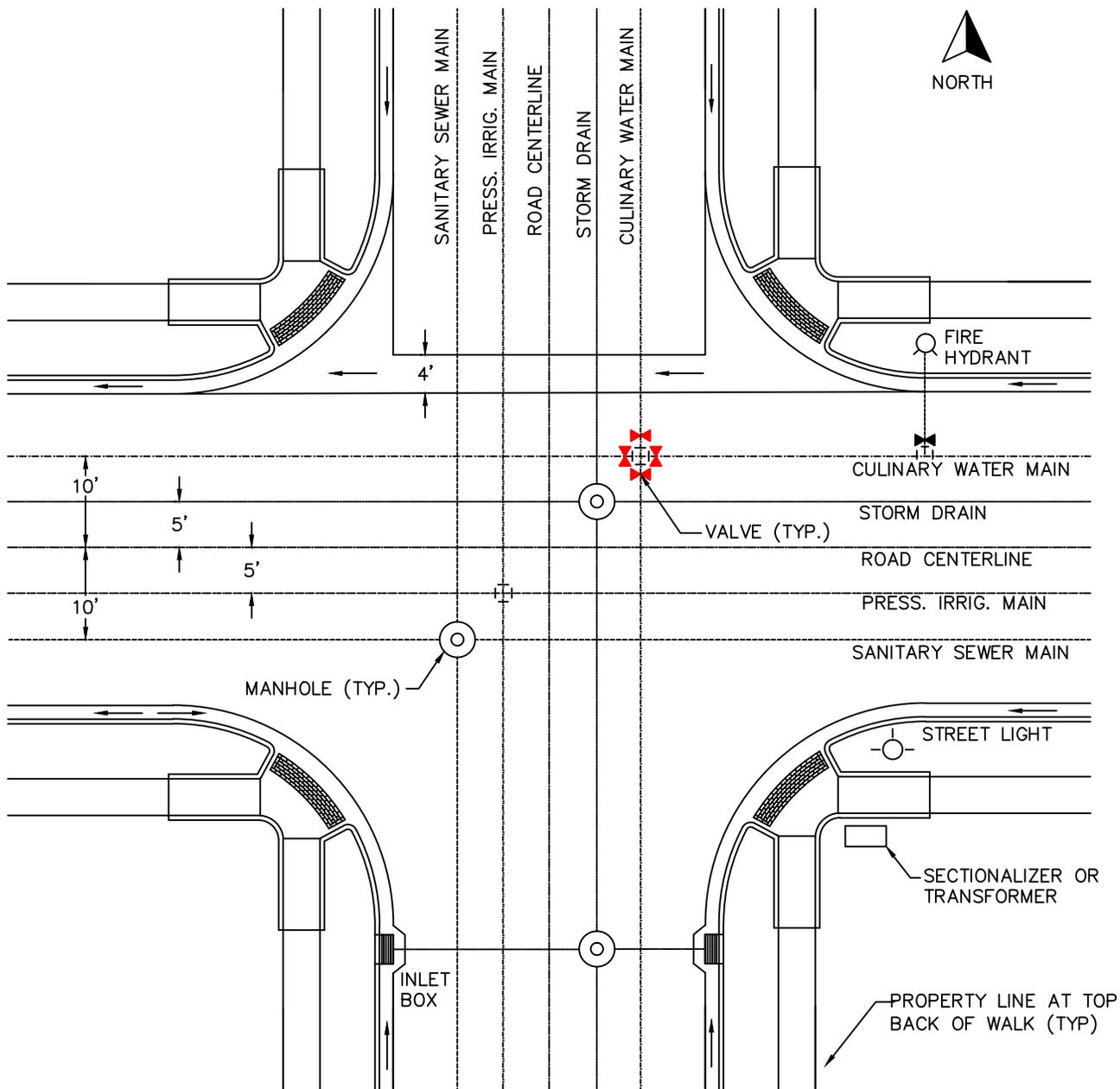


SPANISH FORK CITY
 40 SOUTH MAIN STREET
 SPANISH FORK, UT 84660
 (801) 798-5000

REVISION	DATE	BY

STANDARD DRAWING
 TRENCH CROSS SECTION

SCALE
 NONE
 STANDARD
 1 OF 65



NOTES:

1. CULINARY WATER VALVES SHALL LINE UP WITH THE FRONT OF SIDEWALK. DO NOT PLACE IN CROSS-GUTTERS.
2. PRESSURIZED IRRIGATION VALVES SHALL BE PLACED AT MID-BLOCK LOCATIONS.
3. STORM DRAINS AND CULINARY WATER MAINS SHALL BE LOCATED ON THE NORTH AND EAST SIDES OF THE STREET.
4. SANITARY SEWER AND PRESSURIZED IRRIGATION MAINS SHALL BE LOCATED ON THE SOUTH AND WEST SIDES OF THE STREET.
5. ADA COMPLIANT PEDESTRIAN RAMP SHALL BE PLACED ON ALL CORNERS OF INTERSECTIONS.

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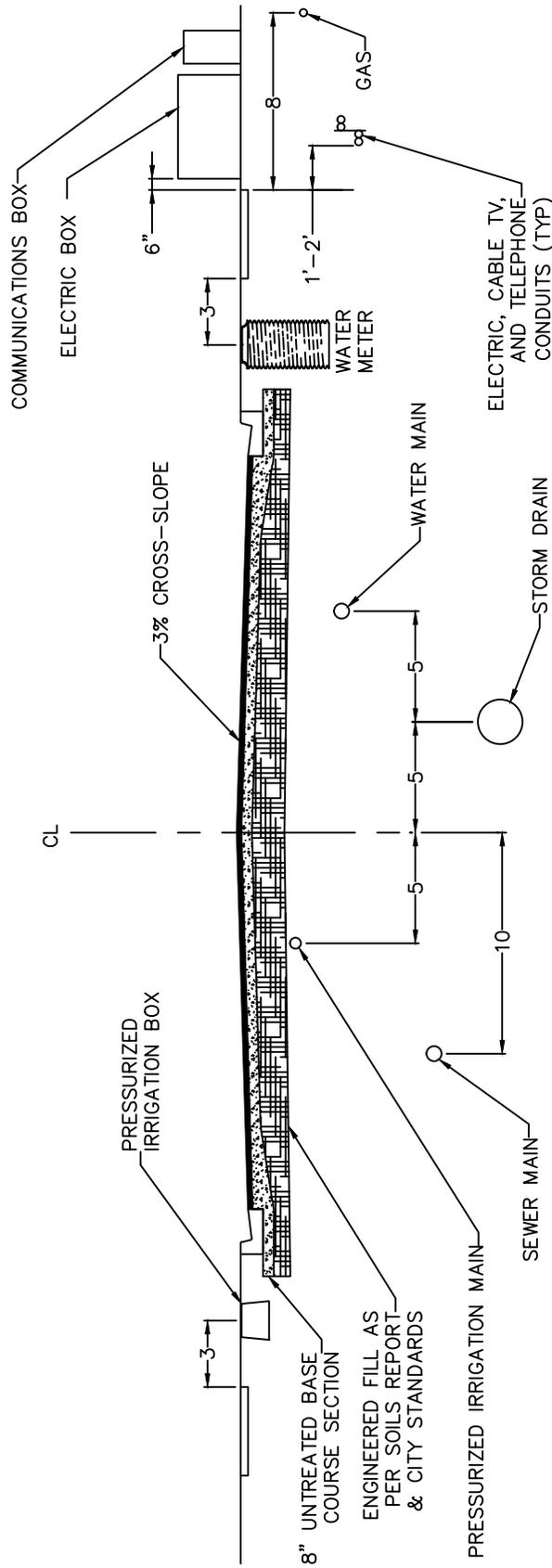


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REVISION	DATE	BY

STANDARD DRAWING
 UTILITY LOCATIONS AT INTERSECTIONS

SCALE	NONE
STANDARD	2 OF 65



- NOTES:
1. FOR PLANTER STRIPS LESS THAN 6' WIDE, PLACE METER BOX IN CENTER OF PLANTER.
 2. MODIFY THIS STANDARD TO SHOW ACTUAL STREET WIDTHS AND CROSS SECTION AS PER SOILS REPORT AND MINIMUM CITY STANDARDS AND THEN PLACE IN DEVELOPMENT PLANS.

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 DATE: 8/11/11

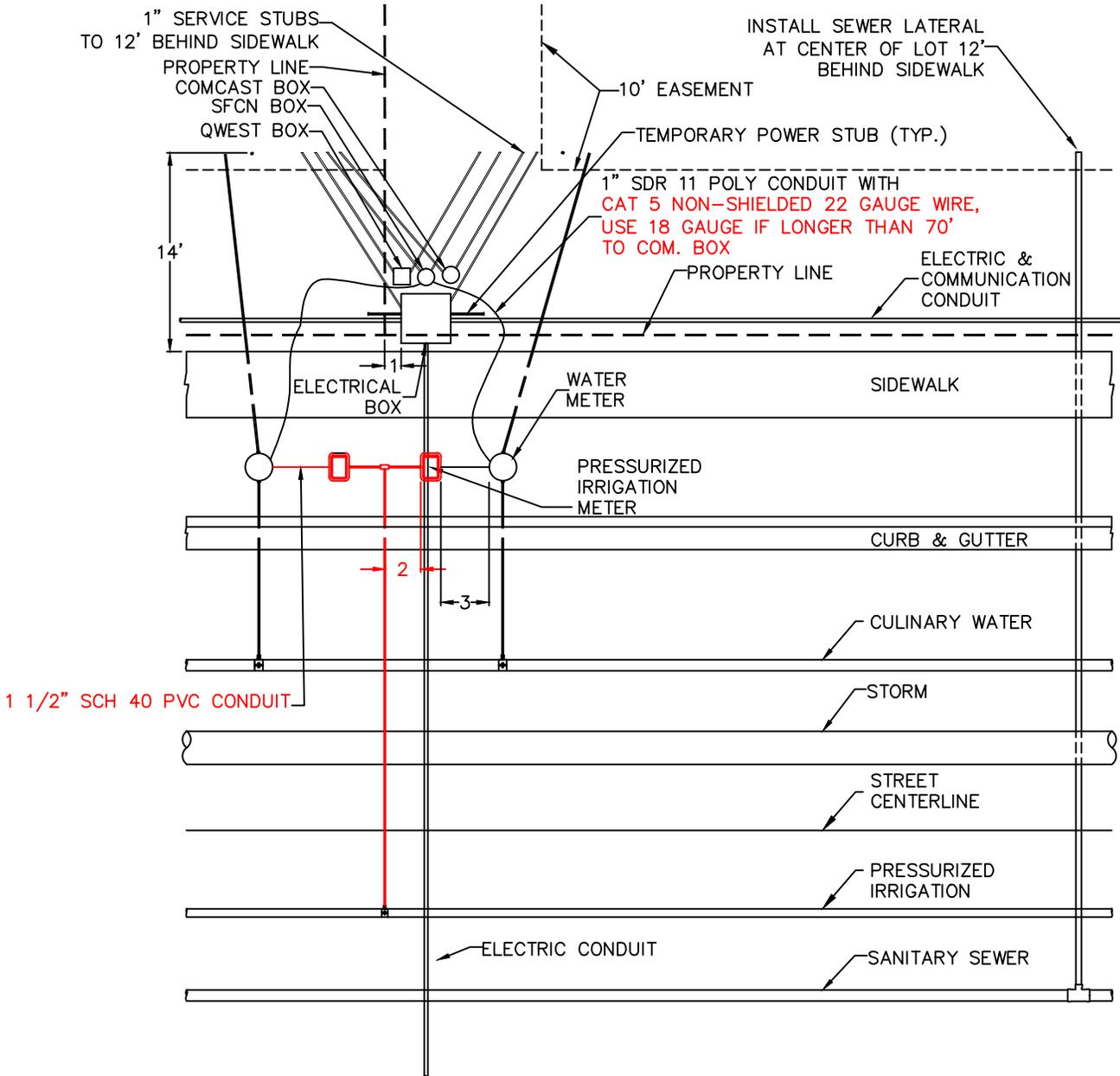


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REVISION	DATE	BY

STANDARD DRAWING
 UTILITY LOCATIONS FOR STREET CROSS SECTIONS

SCALE
 NONE
 STANDARD
 3 OF 65



- NOTES:
1. WATER AND PRESSURIZED IRRIGATION METERS SHALL **NOT** BE LOCATED ON THE SAME SIDE OF THE BUILDING LOT AS THE ELECTRICAL AND COMMUNICATION BOXES.
 2. WATER AND PRESSURIZED IRRIGATION SERVICE LATERALS SHALL BE INSTALLED IN SEPARATE TRENCHES.
 3. THE WIRE CONNECTING THE CULINARY WATER **AND** PRESSURIZED IRRIGATION BOXES SHALL EXTEND 8 INCHES INTO EACH BOX. TAPE EACH END AND BURY CONDUIT 18" BELOW GRADE.
 4. IF 2 ELECTRIC BOXES ARE TO BE LOCATED ADJACENT TO EACH OTHER, LOCATE 1 BOX ON EACH SIDE OF A PROPERTY LINE BETWEEN 2 LOTS.

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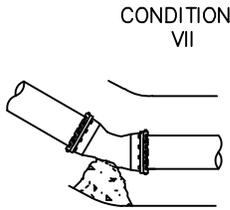


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REVISION	DATE	BY

STANDARD DRAWING
 UTILITY LOCATIONS FOR BUILDING LOTS

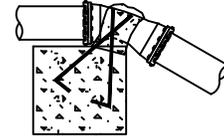
SCALE
 1" = 10'
 STANDARD
 4 OF 65



CEMENT MORTAR 2 #6 REBAR HAIRPINS. PAINT UNEMBEDDED PORTION OF BARS WITH 2 COATS OF COAL TAR EPOXY AND THEN COVER WITH 2" MIN. OF CEMENT MORTAR.

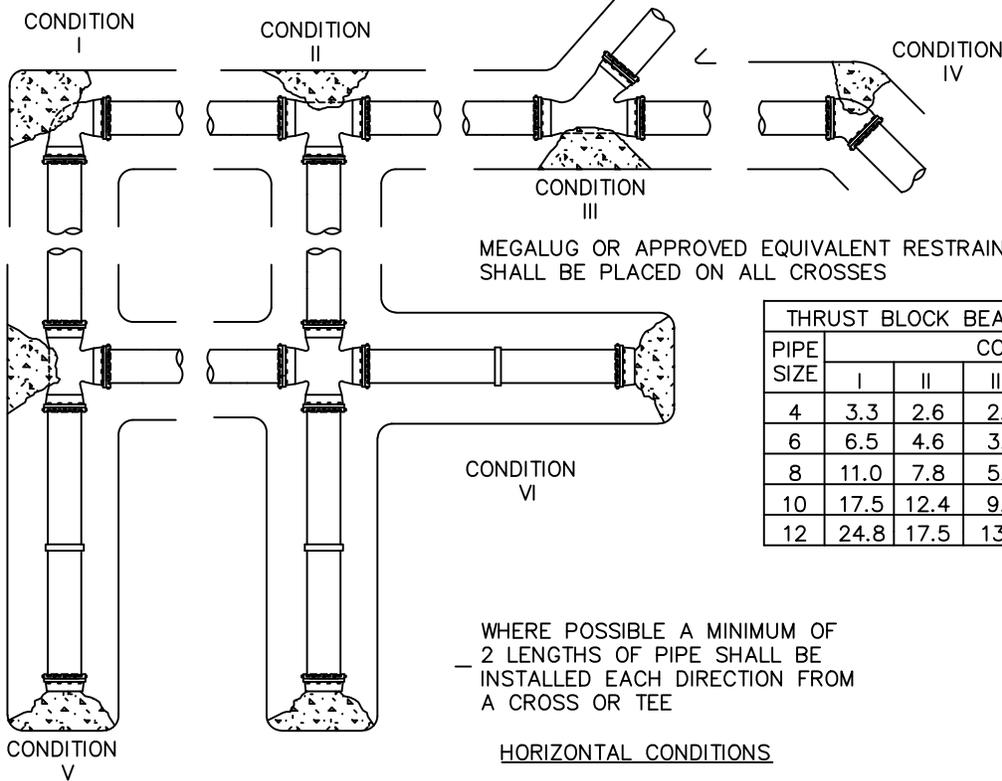


CONDITION IX



4'X4'X6' CONCRETE BLOCK

VERTICAL CONDITIONS



MEGALUG OR APPROVED EQUIVALENT RESTRAINTS SHALL BE PLACED ON ALL CROSSES

PIPE SIZE	THRUST BLOCK BEARING AREA SQ FT					
	CONDITION					
	I	II	III	IV	V	VII
4	3.3	2.6	2.6	1.3	2.6	1.3
6	6.5	4.6	3.9	2.0	4.6	2.0
8	11.0	7.8	5.9	3.3	7.8	3.3
10	17.5	12.4	9.8	5.2	12.4	5.2
12	24.8	17.5	13.6	7.8	17.5	7.8

WHERE POSSIBLE A MINIMUM OF 2 LENGTHS OF PIPE SHALL BE INSTALLED EACH DIRECTION FROM A CROSS OR TEE

HORIZONTAL CONDITIONS

- NOTES:
- MECHANICAL RESTRAINING DEVICES INSTALLED ACCORDING TO THE STANDARD DRAWINGS MAY BE USED IN PLACE OF CONCRETE THRUST BLOCKS. USE MECHANICAL RESTRAINING IN UNSTABLE SOILS.
 - ALL CONCRETE THRUST BLOCK BEARING FACES SHALL BE POURED AGAINST UNDISTURBED SOIL OR APPROVED COMPACTED BACKFILL.
 - A MINIMUM APWA CLASS 2000 PORTLAND CEMENT CONCRETE SHALL BE USED ON ALL HORIZONTAL THRUST BLOCKS AND APWA CLASS 4000 ON VERTICAL.
 - THRUST BLOCKS SHALL NOT INTERFERE WITH ACCESS TO JOINTS AND BOLTS.
 - FITTINGS SHALL BE ENCASED IN AN 8 MIL VINYL WRAP PLASTIC COVER.
 - ALL FITTING JOINTS SHALL BE MECHANICAL.
 - HORIZONTAL THRUST BLOCKS FOR PIPE WITH LARGER THAN 12" I.D. SHALL HAVE A DESIGN SUBMITTED THAT IS STAMPED BY A LICENSED PROFESSIONAL ENGINEER.

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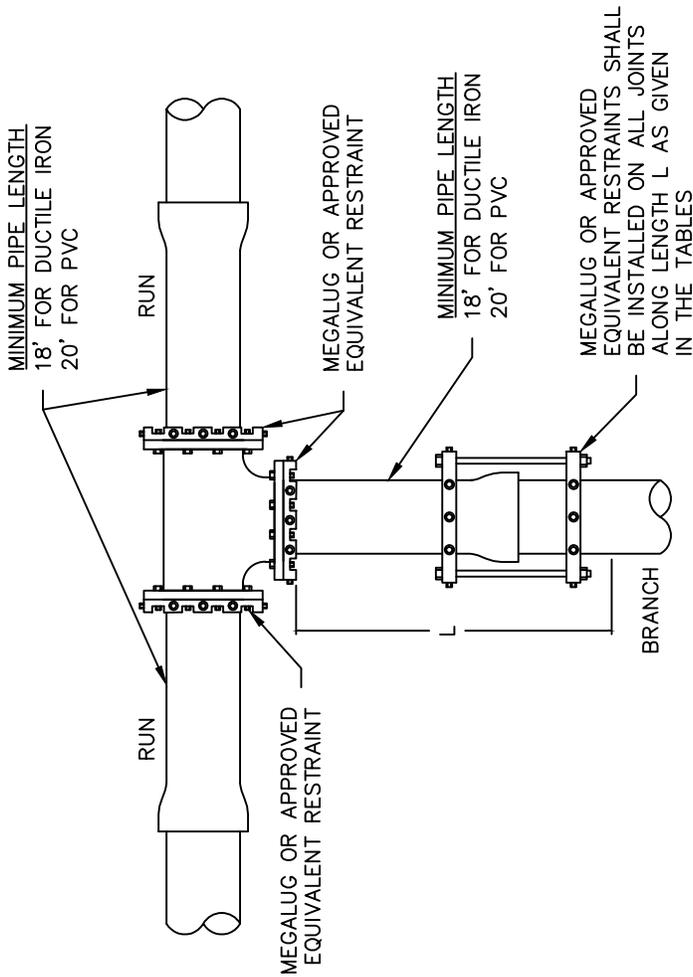
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STANDARD DRAWING
 CONCRETE THRUST BLOCKS FOR PRESSURE PIPE

SCALE
 NONE
 STANDARD
 5 OF 65

CLASS A SOILS
 GW: WELL GRADED GRAVELS AND GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
 SW: WELL GRADED SANDS AND GRAVELLY SANDS, LITTLE OR NO FINES
 GC: CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
 SC: CLAYEY SANDS, SAND-CLAY MIXTURES

CLASS B SOILS
 GP: POORLY GRADED GRAVELS AND GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
 SP: POORLY GRADED SANDS AND GRAVELLY SANDS, LITTLE OR NO FINES
 GM: SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
 SM: SILTY SANDS, SAND SILT MIXTURES
 CL: INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY LAYS, LEAN CLAYS
 ML: INORGANIC SILTS, VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS



PVC PIPE

SOIL CONDITION & DEPTH OF PIPE	MECHANICAL RESTRAINT SPECIFICATION "L" IN FEET FOR BENDS ON SPECIFIED DIAMETERS											
	12"-4"	12"-6"	12"-8"	12"-10"	12"-12"	10"-4"	10"-6"	10"-8"	10"-10"	8"-4"	6"-4"	4"-4"
CLASS A NATIVE SOIL - 2' BURY	20	20	24	66	104	20	20	42	80	20	20	20
CLASS A NATIVE SOIL - 4' BURY	20	20	20	20	38	20	20	20	21	20	20	20
CLASS B NATIVE SOIL - 2' BURY	20	20	57	150	150	20	20	74	118	20	34	91
CLASS B NATIVE SOIL - 4' BURY	20	20	20	74	74	20	20	29	56	20	20	40

DUCTILE IRON PIPE

SOIL CONDITION & DEPTH OF PIPE	MECHANICAL RESTRAINT SPECIFICATION "L" IN FEET FOR BENDS ON SPECIFIED DIAMETERS											
	12"-4"	12"-6"	12"-8"	12"-10"	12"-12"	10"-4"	10"-6"	10"-8"	10"-10"	8"-4"	6"-4"	4"-4"
CLASS A NATIVE SOIL - 2' BURY	18	18	18	43	67	18	18	27	52	18	18	39
CLASS A NATIVE SOIL - 4' BURY	18	18	18	18	18	18	18	18	18	18	18	18
CLASS B NATIVE SOIL - 2' BURY	18	18	38	100	100	18	18	49	78	18	23	60
CLASS B NATIVE SOIL - 4' BURY	18	18	18	49	49	18	18	19	37	18	18	27

- NOTES:
 1. ALL RESTRAINING DEVICES SHALL BE INSTALLED ACCORDING TO THESE REQUIREMENTS OR MANUFACTURER SPECIFICATIONS, WHICHEVER IS MOST CONSERVATIVE.
 2. FOR TRANSITIONS BETWEEN PVC AND DUCTILE IRON PIPE USE THE PVC TABLE.
 3. MECHANICAL RESTRAINTS FOR PIPE LARGER THAN 12" IN DIAMETER MUST BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER.
 4. MECHANICAL RESTRAINTS MAY ONLY BE USED ON PVC OR DUCTILE IRON PIPE.

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 DESIGN: TJB
 CHECK: CMT
 DATE: 8/11/11



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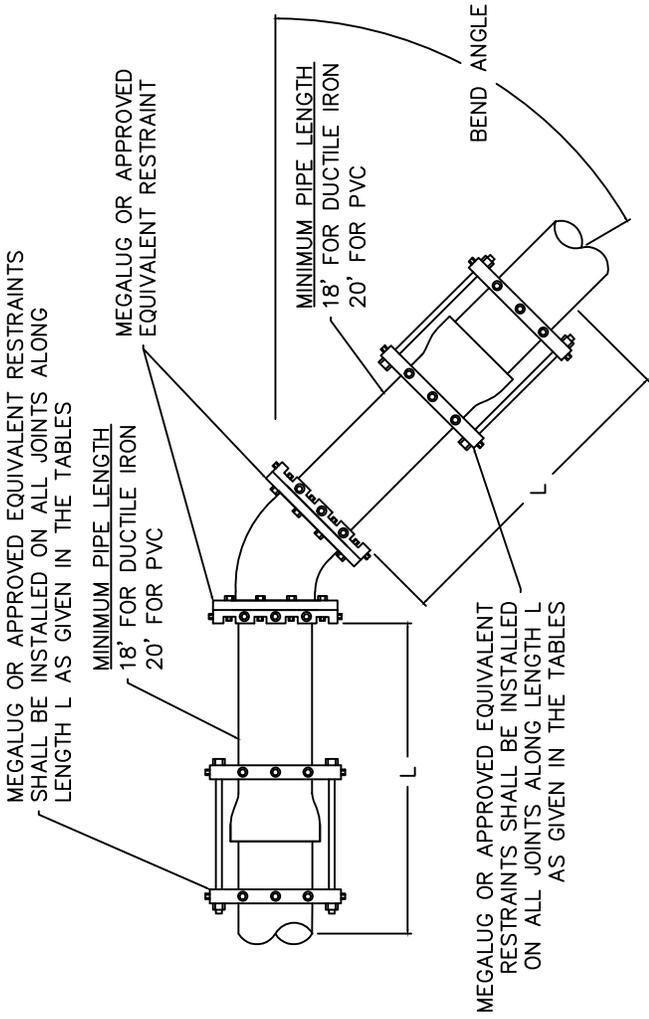
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STANDARD DRAWING
 MECHANICAL RESTRAINING DEVICES FOR
 PRESSURE PIPE TEES

SCALE
 NONE
 STANDARD
 6 OF 65

CLASS A SOILS
 GW: WELL GRADED GRAVELS AND GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
 SW: WELL GRADED SANDS AND GRAVELLY SANDS, LITTLE OR NO FINES
 GC: CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
 SC: CLAYEY SANDS, SAND-CLAY MIXTURES

CLASS B SOILS
 GP: POORLY GRADED GRAVELS AND GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
 SP: POORLY GRADED SANDS AND GRAVELLY SANDS, LITTLE OR NO FINES
 GM: SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
 SM: SILTY SANDS, SAND SILT MIXTURES
 CL: INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY LAYS, LEAN CLAYS
 ML: INORGANIC SILTS, VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS



MEGALUG OR APPROVED EQUIVALENT RESTRAINTS SHALL BE INSTALLED ON ALL JOINTS ALONG LENGTH L AS GIVEN IN THE TABLES

PVC PIPE

SOIL CONDITION & DEPTH OF PIPE	MECHANICAL RESTRAINT SPECIFICATION "L" IN FEET FOR BENDS ON SPECIFIED DIAMETERS															
	11 1/4" BEND			22 1/2" BEND			45° BEND			90° BEND						
	12"	10"	8"	6"	4"	12"	10"	8"	6"	4"	12"	10"	8"	6"	4"	
CLASS A NATIVE SOIL - 2' BURY	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
CLASS A NATIVE SOIL - 4' BURY	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
CLASS B NATIVE SOIL - 2' BURY	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
CLASS B NATIVE SOIL - 4' BURY	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20

DUCTILE IRON PIPE

SOIL CONDITION & DEPTH OF PIPE	MECHANICAL RESTRAINT SPECIFICATION "L" IN FEET FOR BENDS ON SPECIFIED DIAMETERS															
	11 1/4" BEND			22 1/2" BEND			45° BEND			90° BEND						
	12"	10"	8"	6"	4"	12"	10"	8"	6"	4"	12"	10"	8"	6"	4"	
CLASS A NATIVE SOIL - 2' BURY	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
CLASS A NATIVE SOIL - 4' BURY	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
CLASS B NATIVE SOIL - 2' BURY	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
CLASS B NATIVE SOIL - 4' BURY	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18

- NOTES:**
1. ALL RESTRAINING DEVICES SHALL BE INSTALLED ACCORDING TO THESE REQUIREMENTS OR MANUFACTURER SPECIFICATIONS, WHICHEVER IS MOST CONSERVATIVE.
 2. FOR TRANSITIONS BETWEEN PVC AND DUCTILE IRON PIPE USE THE PVC TABLE.
 3. MECHANICAL RESTRAINTS FOR PIPE LARGER THAN 12" IN DIAMETER MUST BE DESIGNED BY A LICENSED ENGINEER.
 4. ALL RESTRAINTS ON VERTICAL BENDS MUST BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER.
 5. MECHANICAL RESTRAINTS MAY ONLY BE USED ON PVC OR DUCTILE IRON PIPE.

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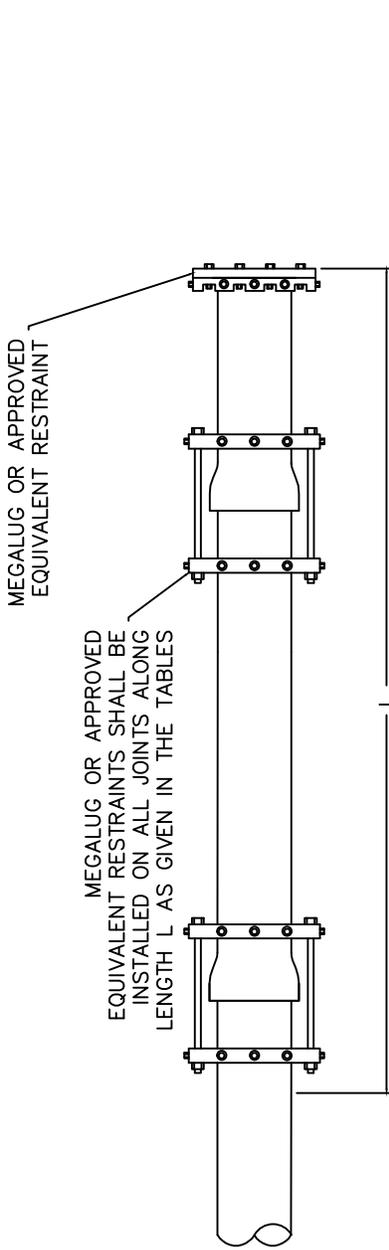


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STANDARD DRAWING
 MECHANICAL RESTRAINING DEVICES FOR
 PRESSURE PIPE BENDS

SCALE
 NONE
 STANDARD
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CLASS A SOILS
 GW: WELL GRADED GRAVELS AND GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
 SW: WELL GRADED SANDS AND GRAVELLY SANDS, LITTLE OR NO FINES
 GC: CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
 SC: CLAYEY SANDS, SAND-CLAY MIXTURES

CLASS B SOILS
 GP: POORLY GRADED GRAVELS AND GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
 SP: POORLY GRADED SANDS AND GRAVELLY SANDS, LITTLE OR NO FINES
 GM: SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
 SM: SILTY SANDS, SAND SILT MIXTURES
 CL: INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY LAYS, LEAN CLAYS
 ML: INORGANIC SILTS, VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS

PVC PIPE

MECHANICAL RESTRAINT SPECIFICATION "L" IN FEET FOR DEAD ENDS ON SPECIFIED DIAMETERS						
SOIL CONDITION & DEPTH OF PIPE	12"	10"	8"	6"	4"	4"
CLASS A NATIVE SOIL - 2' BURY	180	153	128	98	70	70
CLASS A NATIVE SOIL - 4' BURY	113	95	79	60	42	42
CLASS B NATIVE SOIL - 2' BURY	231	197	166	127	91	91
CLASS B NATIVE SOIL - 4' BURY	123	104	87	66	47	47

DUCTILE IRON PIPE

MECHANICAL RESTRAINT SPECIFICATION "L" IN FEET FOR DEAD ENDS ON SPECIFIED DIAMETERS						
SOIL CONDITION & DEPTH OF PIPE	12"	10"	8"	6"	4"	4"
CLASS A NATIVE SOIL - 2' BURY	110	94	79	60	43	43
CLASS A NATIVE SOIL - 4' BURY	72	51	42	32	23	23
CLASS B NATIVE SOIL - 2' BURY	143	123	103	80	57	57
CLASS B NATIVE SOIL - 4' BURY	79	67	56	42	30	30

- NOTES:
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 - FOR DEAD ENDS WITH BOTH PVC AND DUCTILE IRON PIPE USE THE PVC TABLE.
 - MECHANICAL RESTRAINTS FOR PIPE LARGER THAN 12" IN DIAMETER MUST BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER.
 - MECHANICAL RESTRAINTS MAY ONLY BE USED ON PVC OR DUCTILE IRON PIPE.

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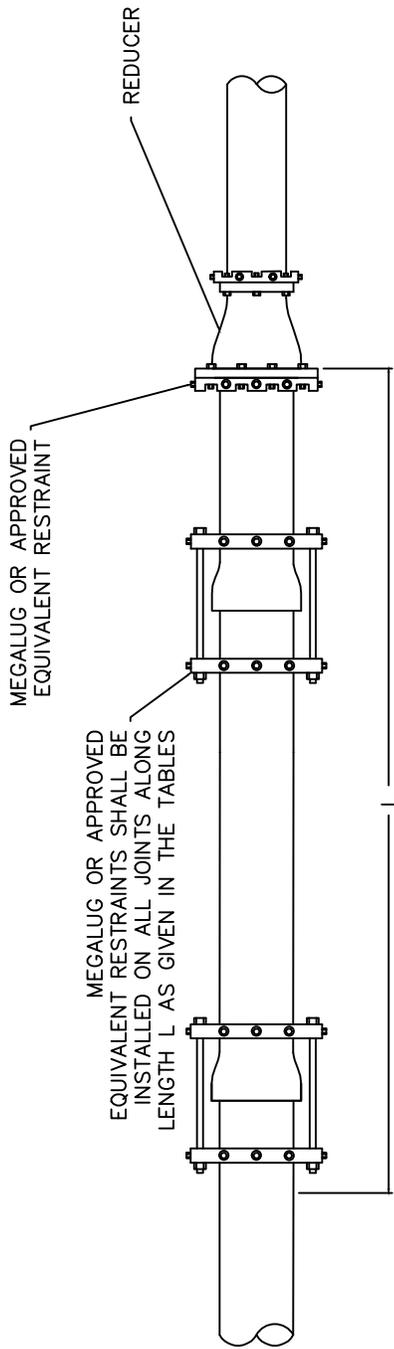


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STANDARD DRAWING
 MECHANICAL RESTRAINING DEVICES FOR
 PRESSURE PIPE DEAD ENDS

SCALE
 NONE
 STANDARD
 8 OF 65



PVC PIPE

MECHANICAL RESTRAINT SPECIFICATION "L" IN FEET FOR REDUCERS ON SPECIFIED DIAMETERS										
SOIL CONDITION & DEPTH OF PIPE	12" - 4"	12" - 6"	12" - 8"	12" - 10"	10" - 4"	10" - 6"	10" - 8"	8" - 4"	8" - 6"	6" - 4"
CLASS A NATIVE SOIL - 2' BURY	138	130	95	88	124	94	51	92	33	51
CLASS A NATIVE SOIL - 4' BURY	98	82	60	55	77	58	32	57	18	31
CLASS B NATIVE SOIL - 2' BURY	200	168	122	113	160	121	66	119	43	66
CLASS B NATIVE SOIL - 4' BURY	107	89	65	60	85	64	35	62	36	34

DUCTILE IRON PIPE

MECHANICAL RESTRAINT SPECIFICATION "L" IN FEET FOR REDUCERS ON SPECIFIED DIAMETERS										
SOIL CONDITION & DEPTH OF PIPE	12" - 4"	12" - 6"	12" - 8"	12" - 10"	10" - 4"	10" - 6"	10" - 8"	8" - 4"	8" - 6"	6" - 4"
CLASS A NATIVE SOIL - 2' BURY	95	80	58	54	76	57	31	57	33	31
CLASS A NATIVE SOIL - 4' BURY	52	44	32	30	41	31	18	30	18	18
CLASS B NATIVE SOIL - 2' BURY	124	104	76	70	100	75	41	74	43	41
CLASS B NATIVE SOIL - 4' BURY	68	57	42	39	54	41	22	40	23	22

CLASS A SOILS

- GW: WELL GRADED GRAVELS AND GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
- SW: WELL GRADED SANDS AND GRAVELLY SANDS, LITTLE OR NO FINES
- GC: CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
- SC: CLAYEY SANDS, SAND-CLAY MIXTURES

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- GM: SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
- SM: SILTY SANDS, SAND SILT MIXTURES
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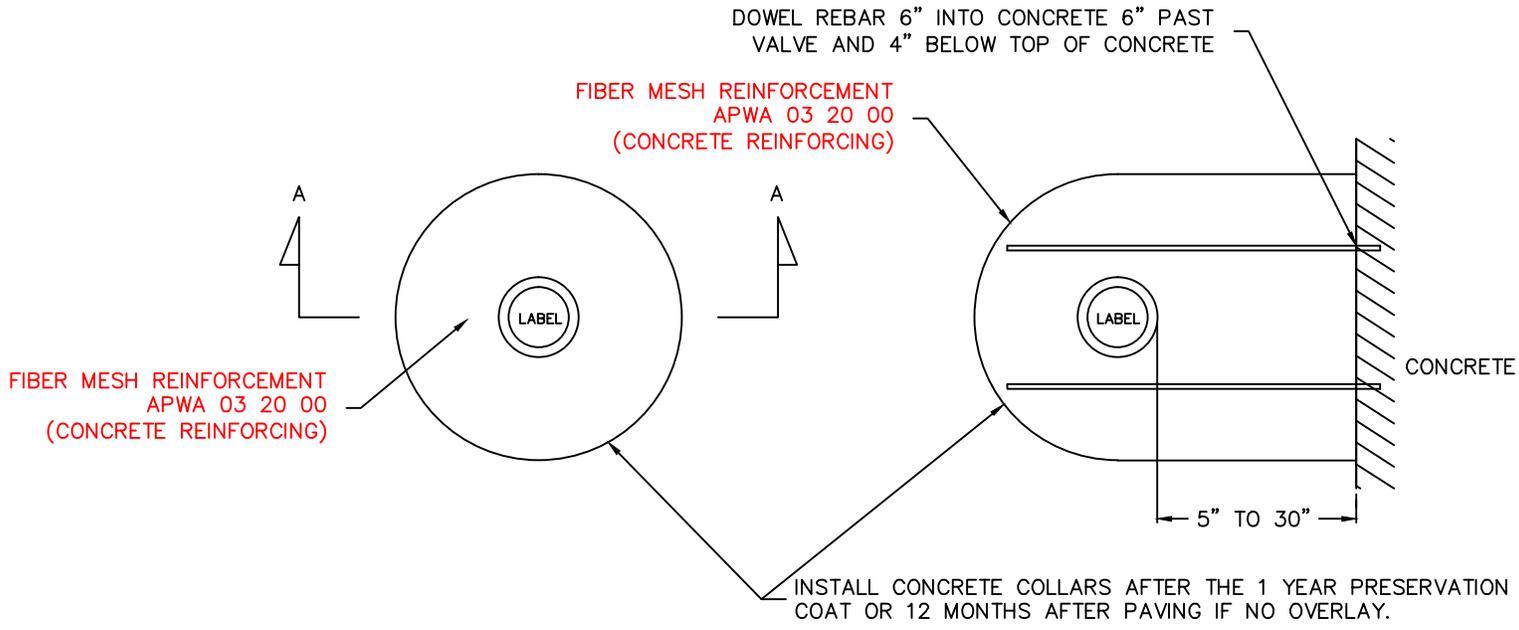


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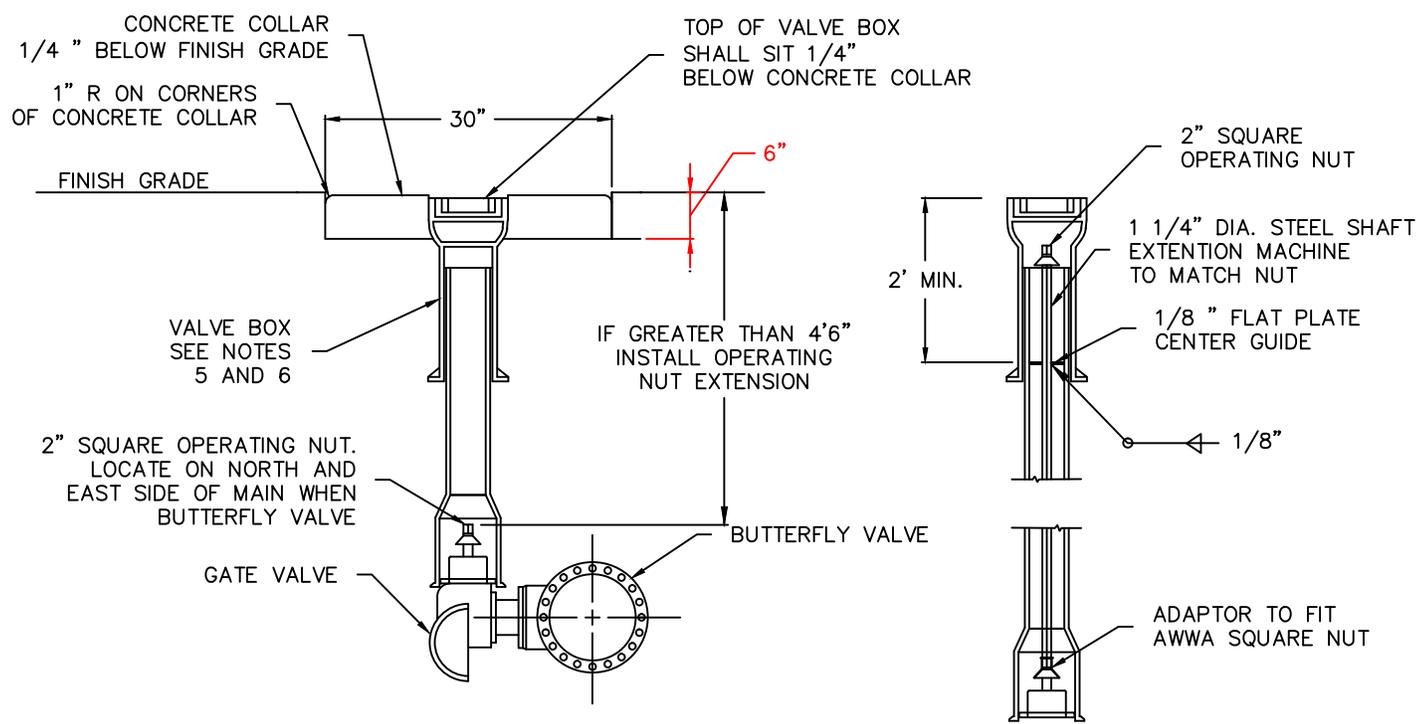
STANDARD DRAWING
 MECHANICAL RESTRAINING DEVICES FOR
 PRESSURE PIPE REDUCERS

SCALE
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 STANDARD
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PLAN

VALVE BOX 5" TO 30"
FROM CONCRETE



SECTION A--A

OPERATING NUT EXTENSION

- NOTES:
1. MECHANICAL RESTRAINTS SHALL BE INSTALLED ON BOTH SIDES OF EACH VALVE.
 2. MECHANICALLY RESTRAIN ALL JOINTS WITHIN 10' OF VALVE. EXCEPTION: IF VALVE IS TO BE INSTALLED INTO AN EXISTING MAIN, MECHANICALLY RESTRAIN JOINTS WITHIN 5' OF VALVE.
 3. VALVE RINGS AND CONCRETE COLLARS SHALL BE PROTECTED BY A COVERING DURING A SEAL COAT.
 4. LABEL ON LID SHALL READ "WATER" FOR CULINARY WATER MAIN VALVES, "FIRE" FOR FIRE LINE VALVES, "IRRIGATION" FOR PRESSURIZED IRRIGATION MAIN VALVES AND "DRAIN" FOR PRESSURIZED IRRIGATION DRAIN VALVES.
 5. VALVE BOXES: 2 PIECE, CAST IRON, SCREW ADJUSTABLE SLEEVE, 5 1/4" SHAFT WITH A DROP LID.
 6. VALVE BOXES ON MAINS TOO SHALLOW FOR 2 PIECE BOXES: A 10" SLIPTOP, D&L M-8056 OR APPROVEDN EQUIVALENT, SHALL BE USED FOR PRESSURIZED IRRIGATION MAINS WITH 2' TO 4' OF COVER. VALVE BOX RISERS SHALL BE USED TO BRING TO FINAL GRADE.

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STANDARD DRAWING
PRESSURE PIPE MAIN LINE VALVE

SCALE	1:2
STANDARD	10 OF 65

INSTALL CRISPIN MODEL
#UL20 UNIVERSAL AIR RELEASE VALVE
WITH 2" PROTECTOP
OR APPROVED EQUIVALENT

2" SCH. 80 BRASS RISER
(MALE) ALLOW FOR VALVE
HANDLE TO OPERATE

INSTALL EXPANDING
SEAL AROUND PIPE

2" THREADED BRASS BALL
VALVE OR BALL CORP STOP

S91 FORD SADDLE OR
APPROVED EQUIVALENT

MAX 14"
MIN 4"

D&L 1180 OR APPROVED EQUIVALENT MANHOLE
FRAME AND LID THAT READS "WATER" OR
"PRESSURIZED IRRIGATION" AS APPROPRIATE,
RECESSED 1/4" BELOW FINISHED GRADE

RESTORE SURFACE TO EXISTING
CONDITION. INSTALL STANDARD
MANHOLE CONCRETE COLLAR IF IN
PAVED SECTION

48" PRECAST CONCRETE
MANHOLE LID

12"
6"

2' 6" MIN. FOR
PRESSURIZED IRRIGATION
4' MIN. FOR WATER

5"

3"

4' PRECAST CONCRETE
MANHOLE SECTION

48"

INSTALL ADDITIONAL MANHOLE
SECTIONS WHEN BOTTOM OF
WATER MAIN EXTENDS BELOW
MANHOLE SECTION

8" OF 3/4"
CRUSHED GRAVEL

SECTION A-A

NOTES:

1. UNDER WET CONDITIONS INSTALL A DRAIN ABOVE THE WATER TABLE AND BELOW THE VALVE.
2. IF POSSIBLE MOVE VALVE OUT OF LINE OF ACCESS.
3. ALL CULINARY AIR RELEASE SHALL BE ACCORDING TO APWA PLAN NO. 575 AND APPROVED BY THE CITY ENGINEER.

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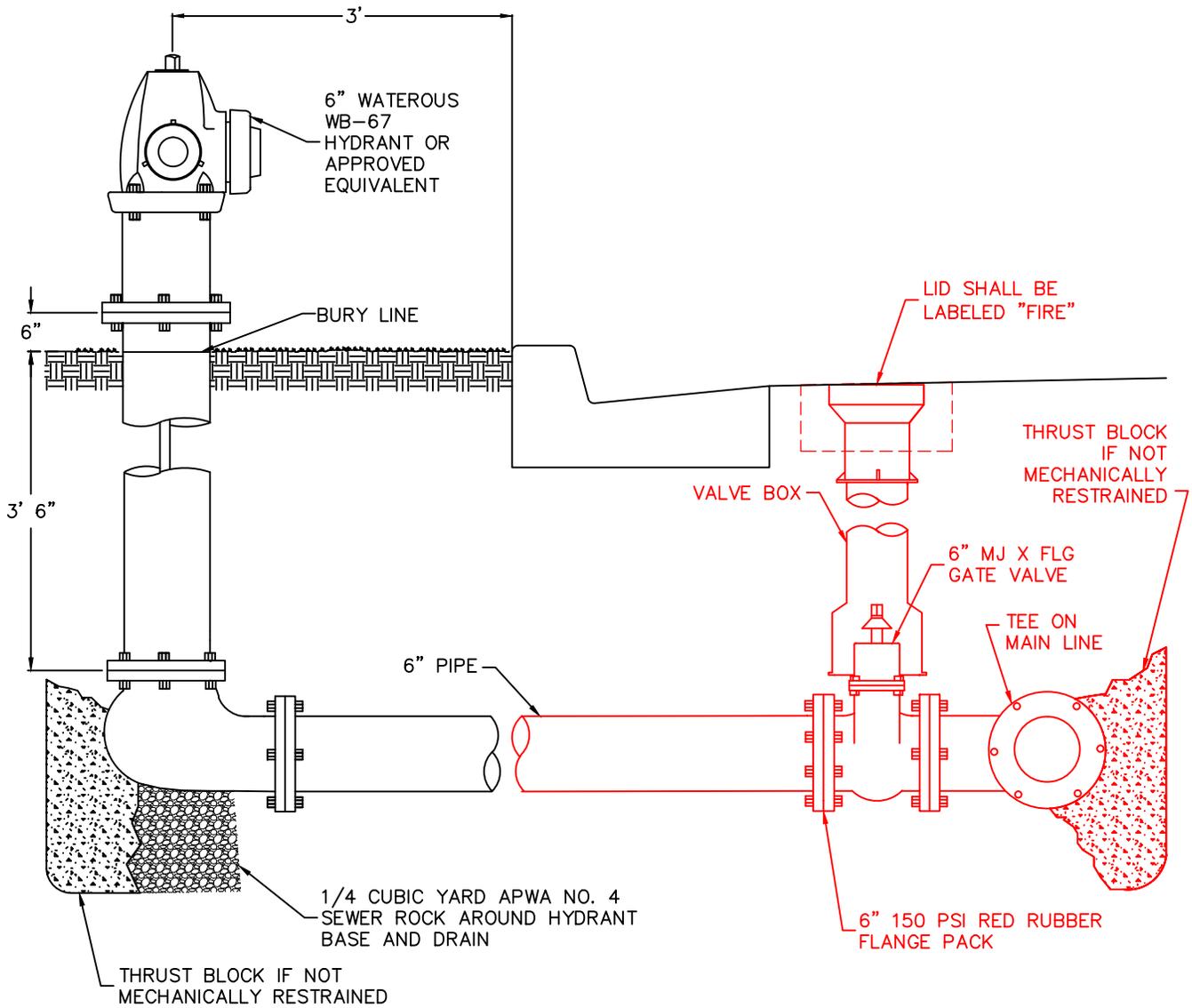


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STANDARD DRAWING
PRESSURIZED IRRIGATION COMBINATION AIR
VACUUM & RELEASE VALVE

SCALE
1:2
STANDARD
11 OF 65



- NOTES:
1. SEE STANDARD DRAWING FOR VALVES.
 2. FIRE HYDRANTS SHALL BE PAINTED RED.
 3. ALL BOLTS SHALL BE FREE FROM CONCRETE AND FULLY ACCESSIBLE.
 4. IF THERE IS NOT A PLANTER STRIP OR THE PLANTER STRIP IS TOO NARROW FOR A FIRE HYDRANT THEN THE CENTER OF HYDRANT SHALL BE PLACED 36" BEHIND THE SIDEWALK.
 5. THERE SHALL BE NO OBSTACLES INCLUDING BUT NOT LIMITED TO POLES, UTILITY BOXES, TREES, FENCES, OR WALLS WITHIN 6' OF HYDRANT.
 6. RISERS MAY ONLY BE USED WHEN AUTHORIZED BY THE CITY ENGINEER OR HIS/HER DESIGNEE.

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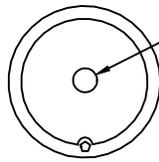
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STANDARD DRAWING
 FIRE HYDRANTS

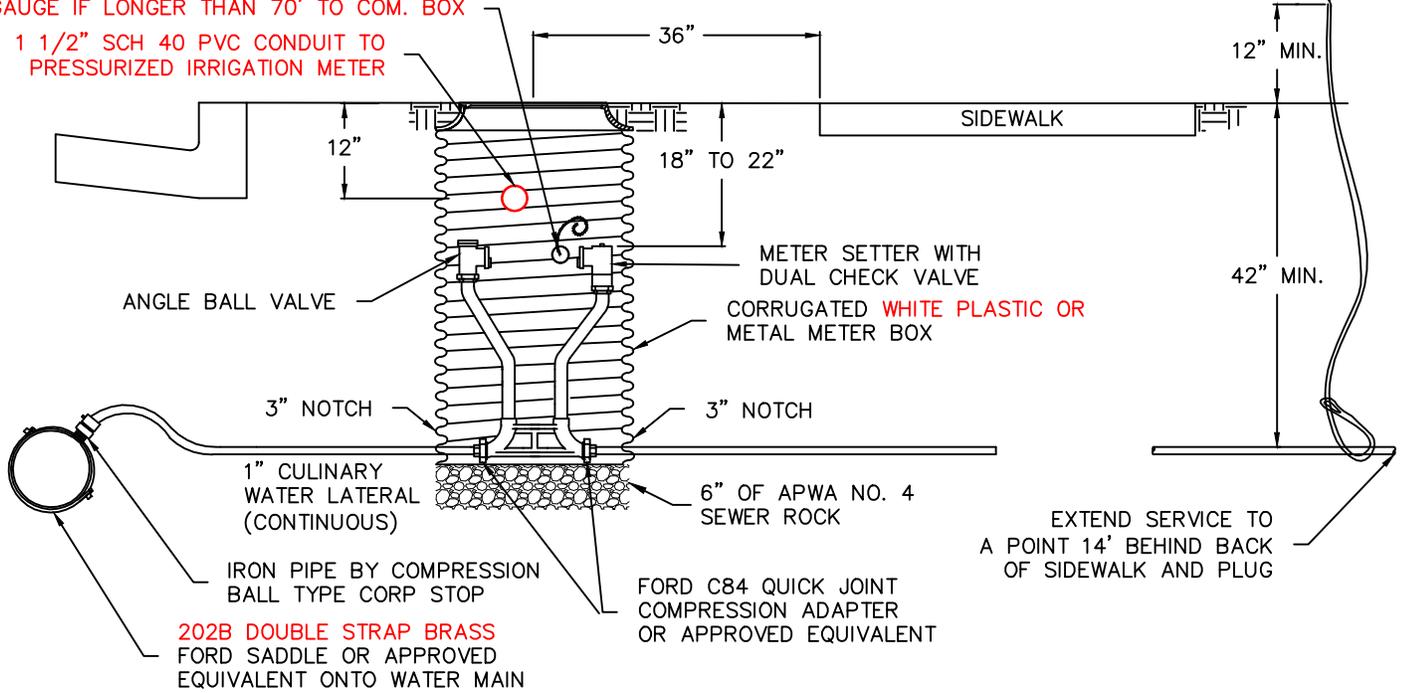
SCALE
 NONE
 STANDARD
 12 OF 65

D&L #L2240-10 OR APPROVED EQUIVALENT
METER BOX LID WITH 1 7/8" HOLE
AND LABEL READING "WATER METER"



RADAR ENGINEERS MODEL 600
BLUE BURIED PIPE MARKERS
OR APPROVED EQUIVALENT

1" SDR 11 POLY CONDUIT WITH CAT 5
NON-SHIELDED 22 GAUGE WIRE. USE 18
GAUGE IF LONGER THAN 70' TO COM. BOX
1 1/2" SCH 40 PVC CONDUIT TO
PRESSURIZED IRRIGATION METER



- NOTES:
1. INSTALL 20" CORRUGATED WHITE PLASTIC OR 20" CMP METER BOX FOR A 1" SERVICE.
 2. CULINARY WATER LATERAL SHALL BE 1" CONTINUOUS TYPE K COPPER OR SDR-9 CTS 200 PSI BLUE POLYPIPE.
 3. FOR PLANTER STRIPS LESS THAN 6' WIDE PLACE METER BOX IN CENTER OF PLANTER. WHERE THERE IS NO PLANTER, PLACE CENTER OF METER BOX 20" BEHIND SIDEWALK.
 4. EXTEND 18 GAUGE WIRE 3' INTO METER BOX AND TAPE ENDS. BURY CONDUIT 18" BELOW GRADE.
 5. TRAFFIC RATED METER BOX LIDS MAY BE USED ONLY WHEN AUTHORIZED BY THE CITY ENGINEER OR HIS / HER DESIGNEE. IF AUTHORIZED D&L #B5020-2 OR APPROVED EQUIVALENT SHALL BE USED FOR 1" SERVICES. SEE STANDARD FOR 2" WATER SERVICE FOR A 1 1/2" SERVICE.

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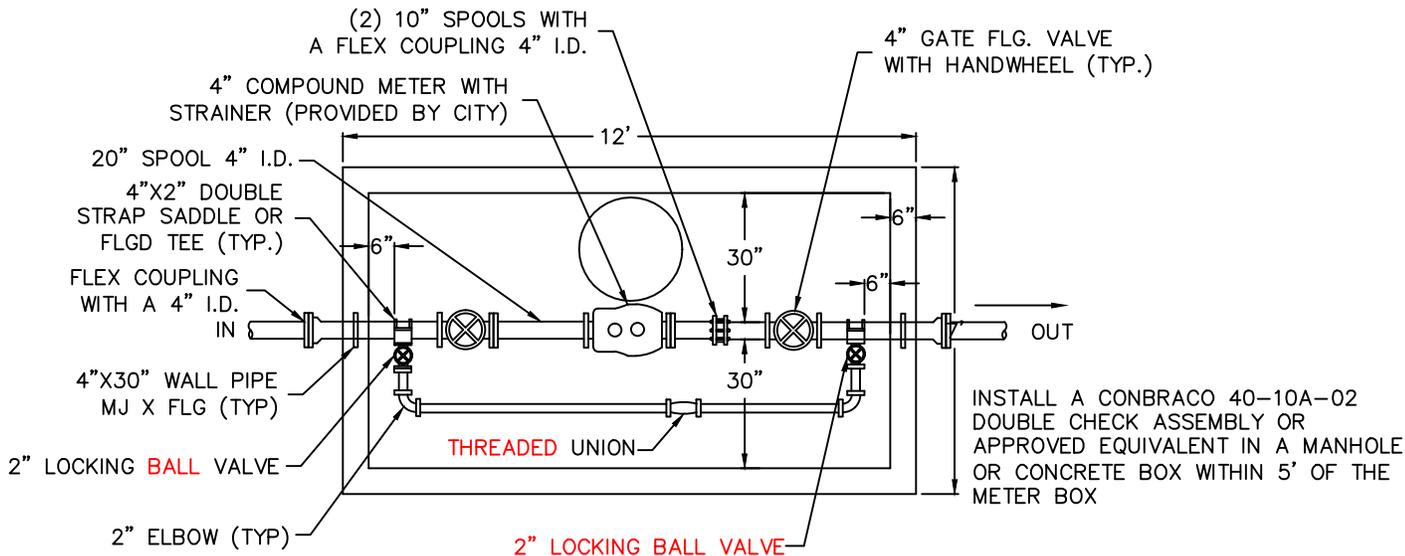


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STANDARD DRAWING
1" WATER SERVICE

SCALE
1:2
STANDARD
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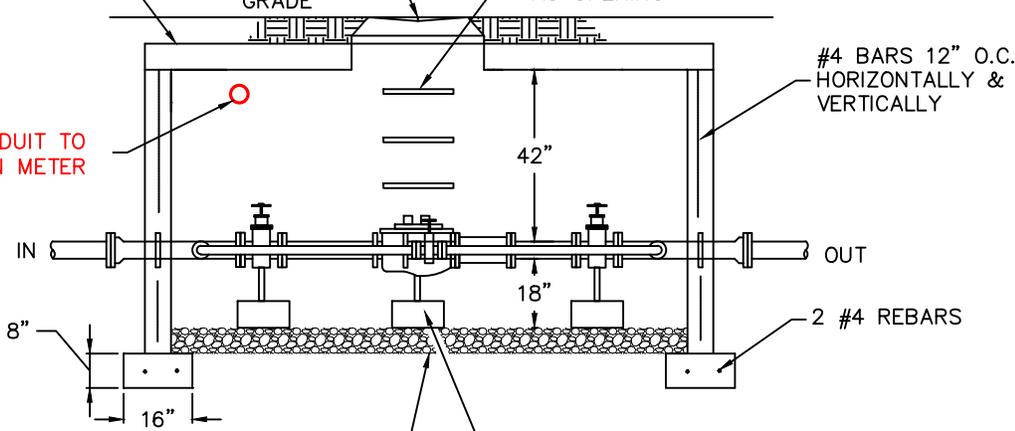
INSTALL A CONBRACO 40-10A-02 DOUBLE CHECK ASSEMBLY OR APPROVED EQUIVALENT IN A MANHOLE OR CONCRETE BOX WITHIN 5' OF THE METER BOX

A D&L 1180 OR EQUIVALENT MANHOLE FRAME AND LID RECESSED 1/4" BELOW FINISHED GRADE, LID MUST BE LABELED "WATER" WITH 1 7/8" HOLE

PRECAST CONCRETE LID WITH DESIGN STAMPED BY A PROFESSIONAL ENGINEER

STEEL REINFORCED PLASTIC MANHOLE STEPS @ 12" O.C. IN LINE AND ON SAME SIDE AS OPENING

1 1/2" SCH 40 PVC CONDUIT TO PRESSURIZED IRRIGATION METER



4" GRAVEL BOTTOM 3/4" WASHED DRAIN ROCK (CONCRETE BOTTOM AND DRAIN IF REQUIRED BY CITY)

12"x12"x6" CONCRETE BLOCK WITH STANDARD MODEL S92 SADDLE SUPPORT OR APPROVED EQUIVALENT (TYP)

NOTES:

1. ALL 4" PIPE AND FITTINGS SHALL BE DUCTILE IRON.
2. ALL 2" PIPE AND FITTINGS SHALL BE BRASS OR COPPER WITH A STAINLESS STEEL HANDLE.
3. ALL REBAR SHALL HAVE 30" OVERLAPS.
4. PORTLAND CEMENT CONCRETE MAY ONLY BE POURED ON UNDISTURBED SOIL, 3/4" CRUSHED GRAVEL, OR COMPACTED UNTREATED ROAD BASE.
5. LARGER WATER SERVICES SHALL BE INDIVIDUALLY DESIGNED AND STAMPED BY A LICENSED PROFESSIONAL ENGINEER.
6. METER BOXES SHALL BE PLACED IN LANDSCAPE AREAS.
7. BURY CONDUIT 18" BELOW GRADE.

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STANDARD DRAWING
4" WATER SERVICE

SCALE	1:4
STANDARD	15 OF 65

LID SHALL BE
LABELED "DRAIN"

STANDARD CONCRETE COLLAR
AROUND VALVE BOX **W/ FIBER
MESH REINFORCEMENT APWA
03 20 00 (CONCRETE REINFORCING)**

2'

MJ X FLG TEE
ONTO MAIN

4" PVC PIPE

CONNECT DRAIN
INTO EXISTING
MANHOLE, SUMP,
BOX OR DITCH AND
GROUT AROUND
CONNECTION

4" FLANGE BY MJ
VALVE
SEE STANDARD
DRAWING FOR
PRESSURE PIPE
MAIN LINE VALVES

DRAWN: JAP
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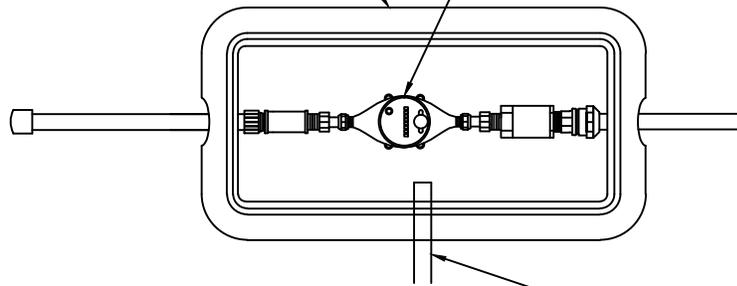
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STANDARD DRAWING
PRESSURIZED IRRIGATION DRAIN

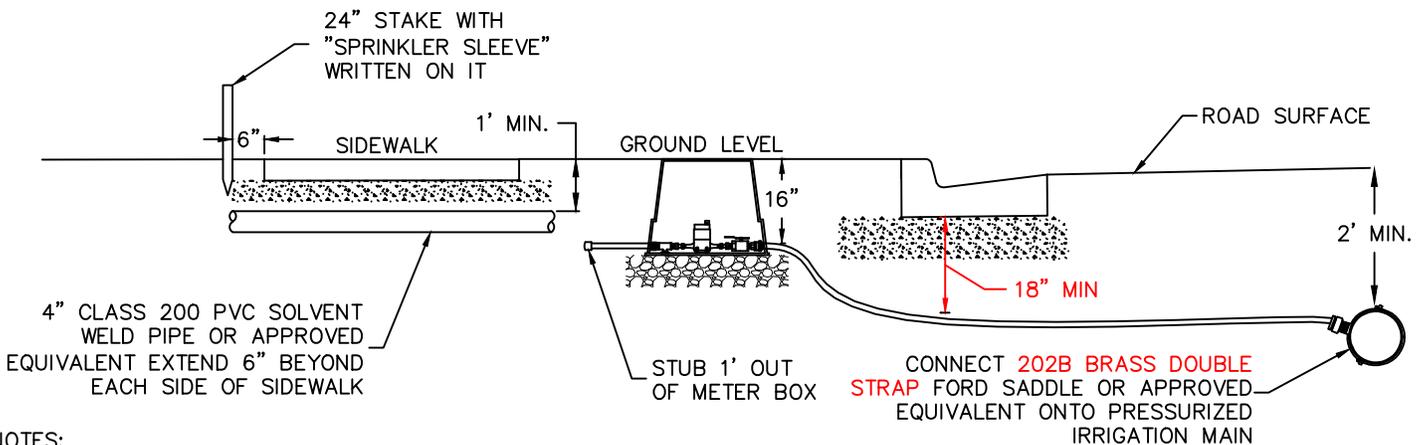
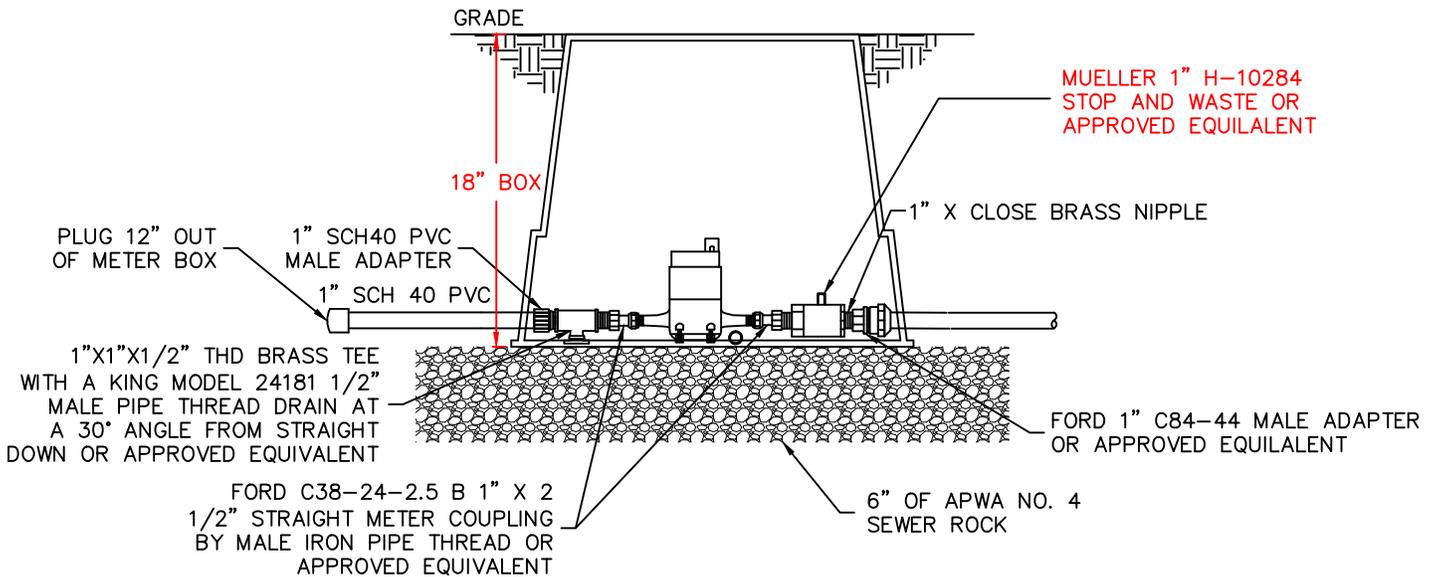
SCALE
2:1
STANDARD
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CARSON-BROOKS 1220-12 IRRIGATION BOX WITH CARSON BROOKS 1220-4 BOLT-DOWN COVER, OR APPROVED EQUIVALENT, WITH ONE 1220-6X EXTENSIONS, WITH 1 7/8" HOLE THAT ALLOWS FOR THE INSTALLATION OF A TR PL PAD TOUCH READ DEVICE

METER SHALL BE PROVIDED BY THE CITY AND INSTALLED BY THE CONTRACTOR



1 1/2" SCH 40 PVC CONDUIT TO WATER METER



NOTES:

1. STANDARD SERVICE SIZE SHALL BE 1" CONTINUOUS SDR-9 CTS 200 PSI PURPLE POLY PIPE.
2. STAINLESS STEEL LINER INSERTS WILL BE REQUIRED INSIDE OF TUBING AT COMPRESSION FITTINGS.
3. ALL FITTINGS SHALL BE COMPATIBLE WITH SERVICE SIZE.
4. SERVICE LATERAL SHALL SLOPE TOWARDS PRESSURIZED IRRIGATION MAIN.
5. SPRINKLER SLEEVE SHALL NOT BE IN LINE WITH ANY UTILITY BOXES.
6. 1/2" POLY CONDUIT SHALL BE BURIED 2' BELOW GRADE.
7. FOR TRAFFIC AREAS, USE A CDR SYSTEMS CORP 16X21X18 FIBERGLASS REINFORCED POLYMER CONCRETE BOX WITH "IRRIGATION" MARKED ON THE LID WITH A TOUCH READ HOLE FOR A TR PL PAD DEVICE. PART NO. A03-1622-18 OR APPROVED EQUIVALENT.

DRAWN: JAP
 DESIGN: TJB
 CHECK: CMT
 DATE: 8/11/11

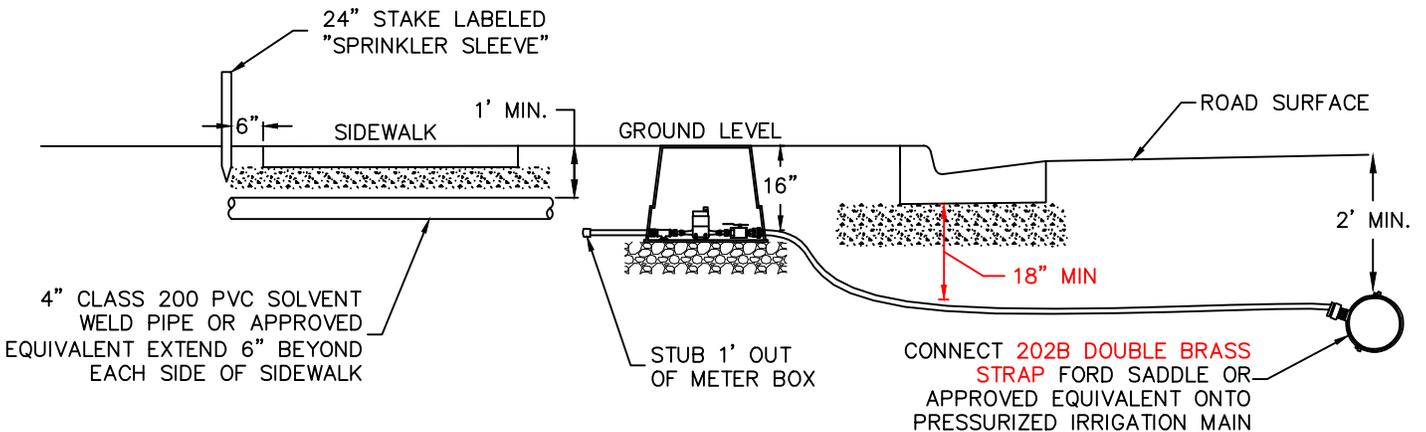
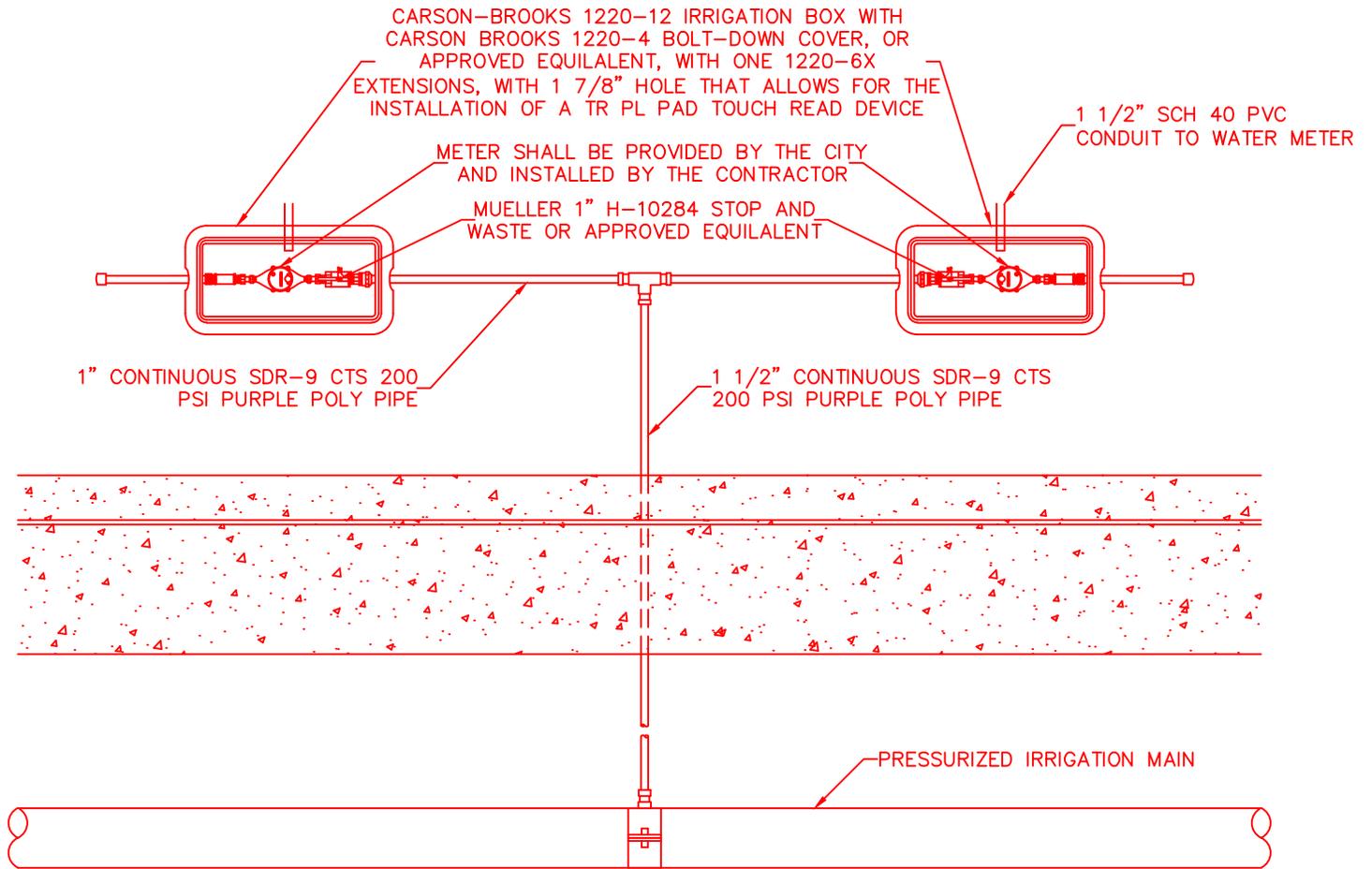


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REVISION	DATE	BY

STANDARD DRAWING
 1" PRESSURIZED IRRIGATION SERVICE BOX AND LATERAL

SCALE
 NONE
 STANDARD
 17 OF 65



NOTES:

1. STANDARD SERVICE SIZE SHALL BE 1" CONTINUOUS SDR-9 CTS 200 PSI PURPLE POLY PIPE.
2. STAINLESS STEEL LINER INSERTS WILL BE REQUIRED INSIDE OF TUBING AT COMPRESSION FITTINGS.
3. ALL FITTINGS SHALL BE COMPATIBLE WITH SERVICE SIZE.
4. SERVICE LATERAL SHALL SLOPE TOWARDS PRESSURIZED IRRIGATION MAIN.
5. SPRINKLER SLEEVE SHALL NOT BE IN LINE WITH ANY UTILITY BOXES.
6. 1/2" POLY CONDUIT SHALL BE BURIED 2' BELOW GRADE.
7. FOR TRAFFIC AREAS, USE A CDR SYSTEMS CORP 16X21X18 FIBERGLASS REINFORCED POLYMER CONCRETE BOX WITH "IRRIGATION" MARKED ON THE LID WITH A TOUCH READ HOLE FOR A TR PL PAD DEVICE. PART NO. A03-1622-18 OR APPROVED EQUIVALENT.

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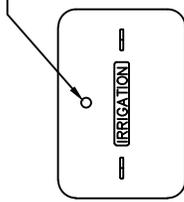
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STANDARD DRAWING
 1" DUAL PRESSURIZED IRRIGATION SERVICE

SCALE
 NONE
 STANDARD
 18 OF 65

1 7/8" HOLE THAT ALLOWS FOR THE INSTALLATION OF A TR PL PAD TOUCH READ DEVICE



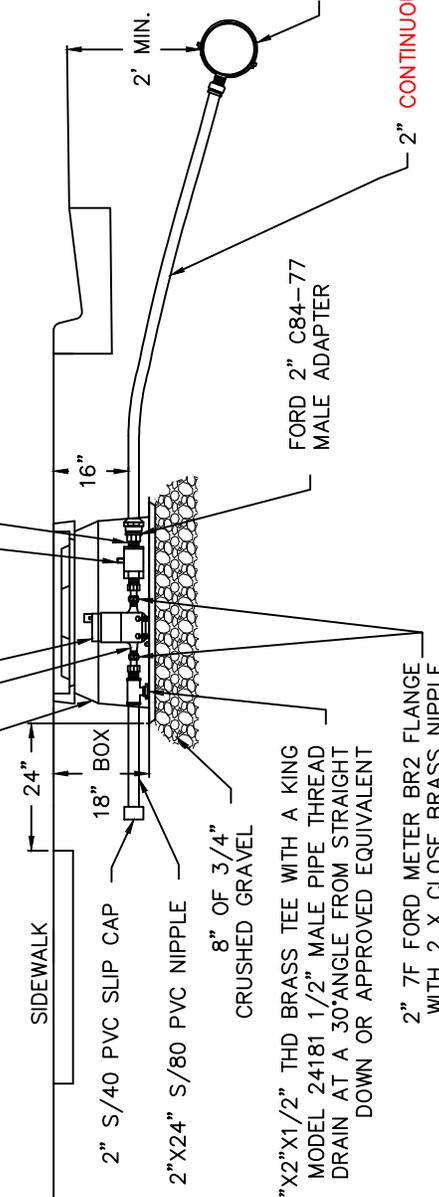
2" TO 4" CLEARANCE TO TOP OF METER

2" MUELLER H-10284 STOP & WASTE OR APPROVED EQUIVALENT

2" X CLOSE BRASS NIPPLE

1 1/2" SCH 40 PVC CONDUIT TO WATER METER

SEE NOTES 2 AND 3 FOR THE SPECIFICATIONS OF THE METER BOX



2" S/40 PVC SLIP CAP

2" X 24" S/80 PVC NIPPLE

8" OF 3/4" CRUSHED GRAVEL

2" X 2" X 1/2" THD BRASS TEE WITH A KING MODEL 24181 1/2" MALE PIPE THREAD DRAIN AT A 30° ANGLE FROM STRAIGHT DOWN OR APPROVED EQUIVALENT

2" 7/8" FORD METER BR2 FLANGE WITH 2" X CLOSE BRASS NIPPLE

FORD 2" C84-77 MALE ADAPTER

2" CONTINUOUS SDR-9 CTS 200 PSI PURPLE POLYPIPE

CONNECT 202B DOUBLE BRASS STRAP FORD SADDLE OR APPROVED EQUIVALENT ONTO PRESSURIZED IRRIGATION MAIN

NOTES:

1. ADJUST ALL APPURTENANCES TO AN EQUIVALENT 1 1/2" SIZE FOR 1 1/2" SERVICES.
2. FOR NON TRAFFIC AREAS, METER BOX SHALL BE A CARSON BROOKS 24X36 1730-18 BOX WITH A 1730-3B LID WITH A TOUCH READ HOLE FOR A TR PL PAD DEVICE OR APPROVED EQUIVALENT.
3. FOR TRAFFIC AREAS, USE A CDR SYSTEMS CORP 24X36X18 FIBERGLASS REINFORCED POLYMER CONCRETE BOX WITH "IRRIGATION" MARKED ON THE LID WITH A TOUCH READ HOLE FOR A TR PL PAD DEVICE. PART NO. A00-2436-18 OR APPROVED EQUIVALENT.
4. SPRINKLER SLEEVE SHALL NOT BE IN LINE WITH ANY UTILITY BOXES.

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CHECK:	CMT
DATE:	8/11/11

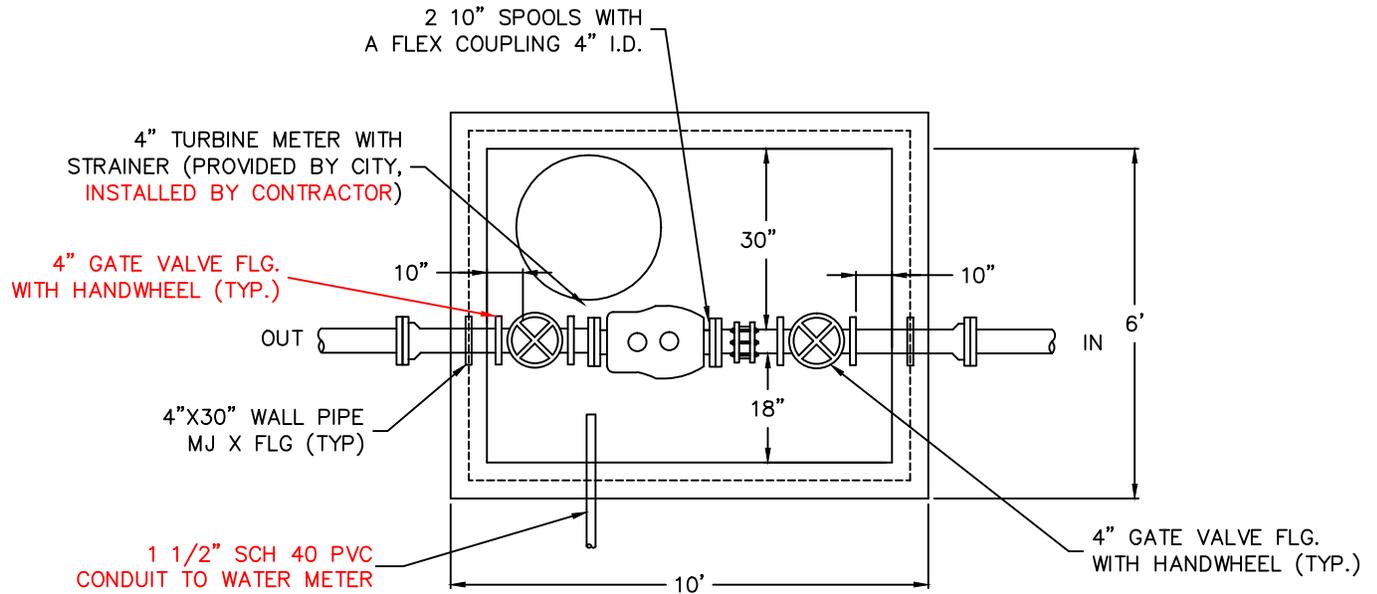


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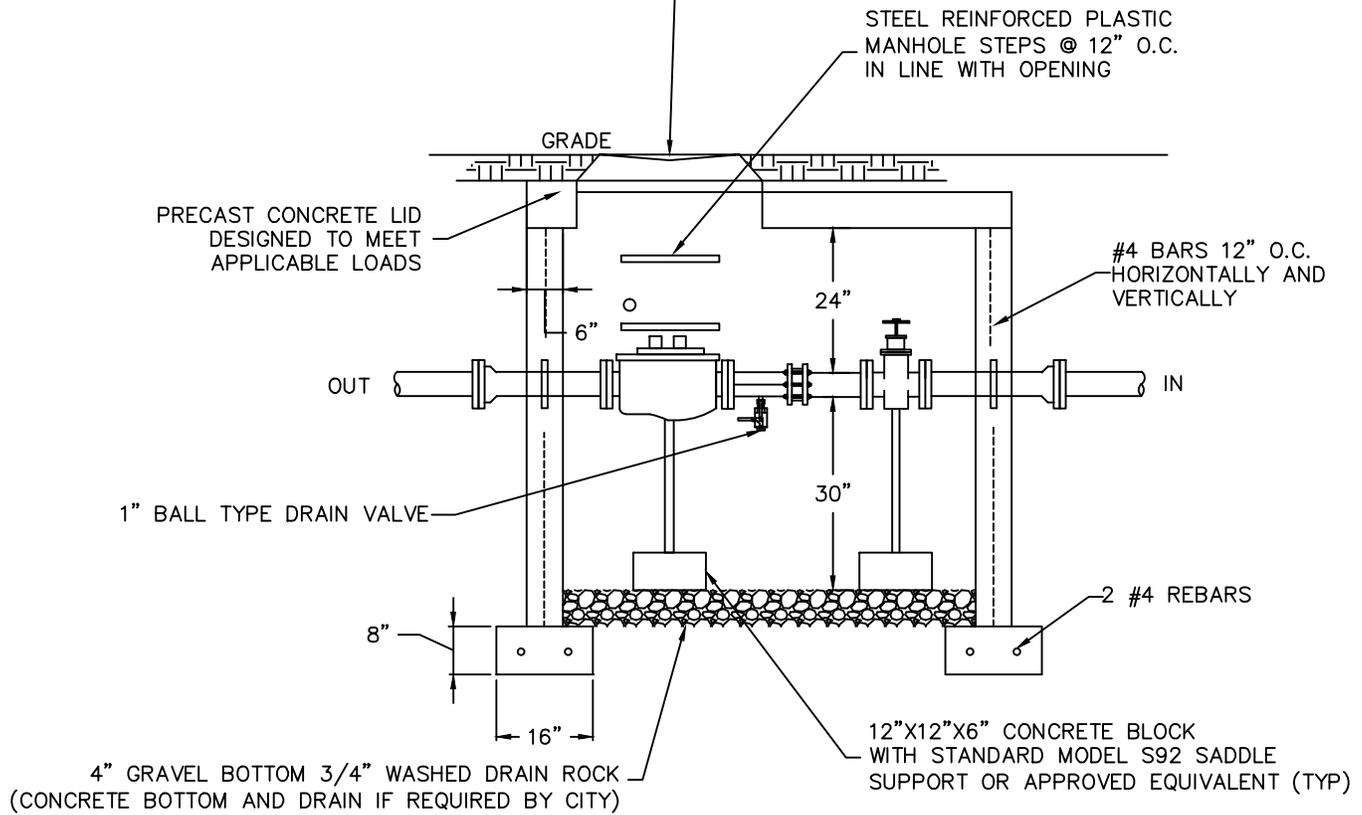
REVISION	DATE	BY

STANDARD DRAWING
1.5" & 2" PRESSURIZED IRRIGATION SERVICE

SCALE
1:3
STANDARD
19 OF 65



A D&L 1180 OR EQUIVALENT MANHOLE FRAME AND LID RECESSED 1/4" BELOW FINISHED GRADE, LID MUST BE LABELED IRRIGATION WITH 1 7/8" HOLE THAT ALLOWS FOR THE INSTALLATION OF A TR PL PAD TOUCH READ DEVICE



NOTES:

1. ALL 4" PIPE AND FITTINGS SHALL BE DUCTILE IRON.
2. ALL 1" PIPE AND FITTINGS SHALL BE BRASS OR COPPER WITH STAINLESS STEEL HANDLE.
3. ALL REBAR SHALL HAVE 30" OVERLAPS.
4. PORTLAND CEMENT CONCRETE MAY ONLY BE POURED ON UNDISTURBED SOIL, 3/4" CRUSHED GRAVEL, OR COMPACTED UNTREATED BASE COURSE.
5. METER BOXES SHALL BE PLACED IN LANDSCAPE AREAS.

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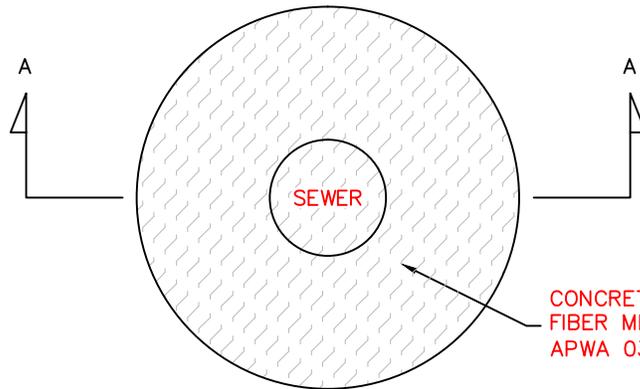


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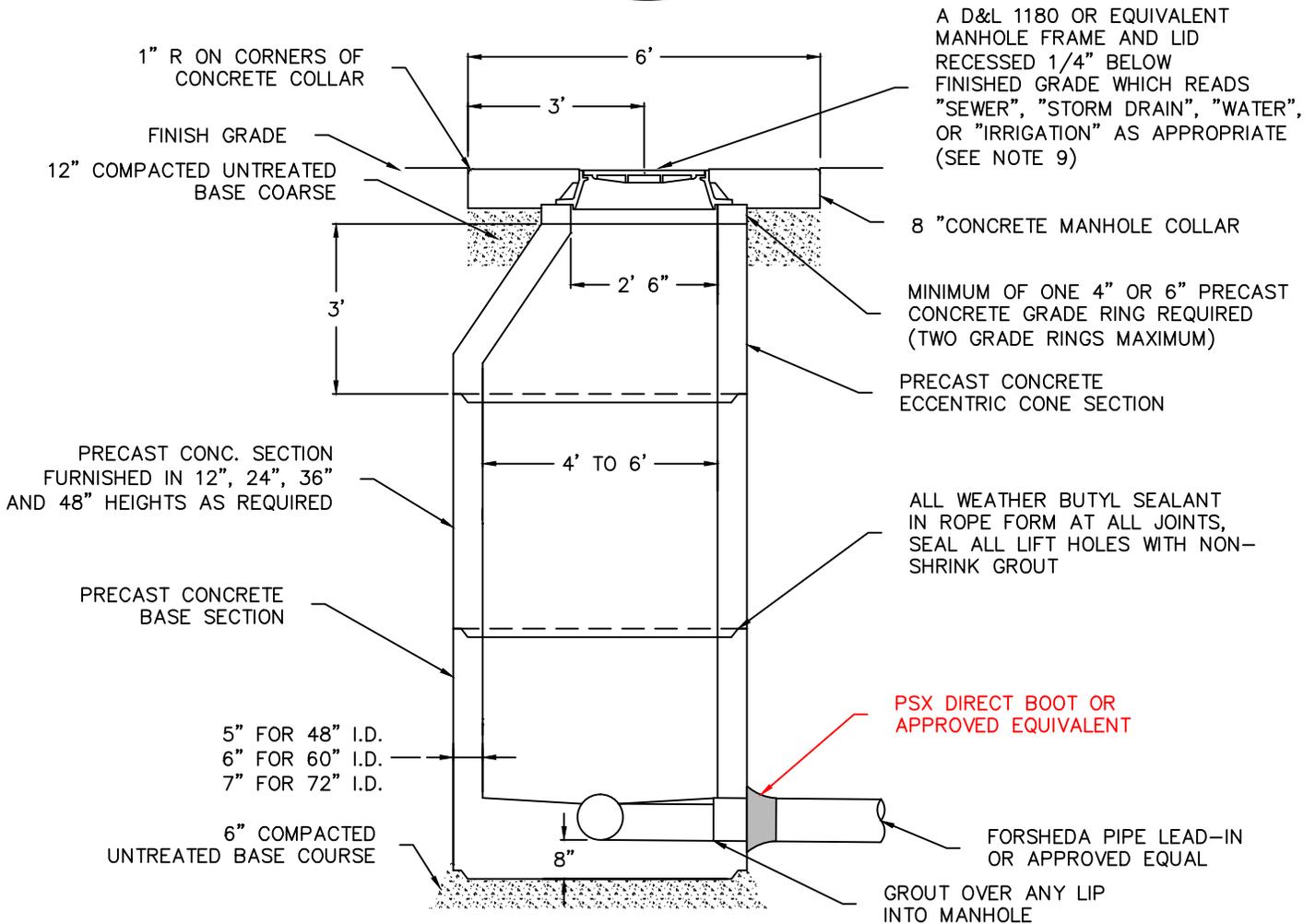
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STANDARD DRAWING
 4" PRESSURIZED IRRIGATION SERVICE

SCALE
 1" = 4'
 STANDARD
 20 OF 65



CONCRETE COLLAR WITH
FIBER MESH REINFORCEMENT
APWA 03 20 00 (CONCRETE REINFORCING)



A D&L 1180 OR EQUIVALENT
MANHOLE FRAME AND LID
RECESSED 1/4" BELOW
FINISHED GRADE WHICH READS
"SEWER", "STORM DRAIN", "WATER",
OR "IRRIGATION" AS APPROPRIATE
(SEE NOTE 9)

- NOTES:
1. USE 4' I.D. MANHOLES FOR MAIN LINES LESS THAN 18" IN DIAMETER; 5' I.D. MANHOLES FOR MAIN LINES 18" TO 30" IN DIAMETER, AND 6' I.D. FOR MAIN LINES GREATER THAN 30" IN DIAMETER.
 2. FLAT LIDS MAY BE USED IN LIEU OF ECCENTRIC CONES WHERE NECESSARY. FLAT LIDS SHALL BE OF ECCENTRIC DESIGN AND MEET H2O LIVE LOADING. NO FLAT RING AND COVERS WILL BE ALLOWED UNLESS APPROVED BY CITY ENGINEER OR HIS/HER DESIGNEE.
 3. MANHOLE RIMS PLACED IN FIELDS SHALL HAVE SOLID LIDS AND BE BURIED 2 FEET DEEP.
 4. MANHOLE RIMS OUT OF STREETS SHALL BE PLACED 4 INCHES ABOVE GRADE.
 5. CONCRETE COLLAR AND RIM SHALL BE INSTALLED 1/4" BELOW PAVEMENT SURFACE AFTER THE 1 YEAR PRESERVATION COAT.
 6. MANHOLE COLLARS AND RINGS SHALL BE PROTECTED BY A COVERING DURING A SEAL COAT.
 7. STORM MANHOLES MAY HAVE FLAT BOTTOMS IN THE BASES.
 8. CONCRETE COLLAR SHALL BE PLACED AFTER THE 1 YEAR PRESERVATION COAT WHEN APPLICABLE.
 9. IN PAVED AREAS WITH A SLOPE GREATER THAN 5% USE AN EJIW 3624 TWIST BASE OR APPROVED EQUIVALENT.

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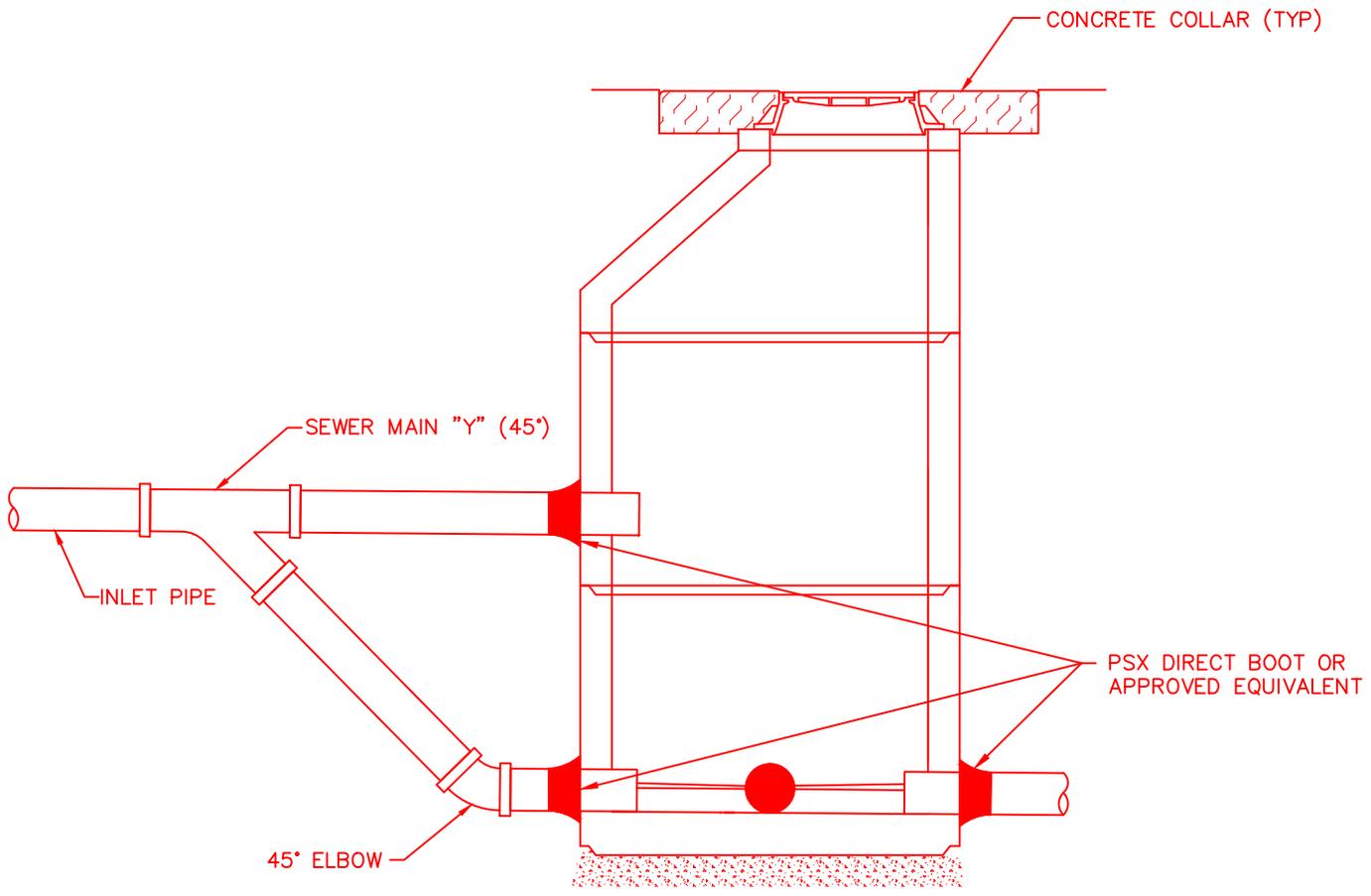


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REVISION	DATE	BY

STANDARD DRAWING
MANHOLE

SCALE
1:3
STANDARD
21 OF 65



NOTES:

1. MANHOLE MUST MEET ALL THE REQUIREMENTS FOR A STANDARD MANHOLE IN ADDITION TO THE DROP MANHOLE REQUIREMENTS.

DRAWN: JAP
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 CHECK: CMT
 DATE: 8/11/11



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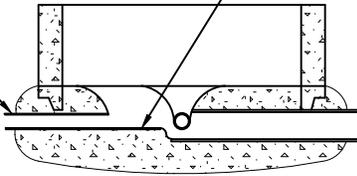
REVISION	DATE	BY

STANDARD DRAWING
 DROP MANHOLE CROSS SECTION

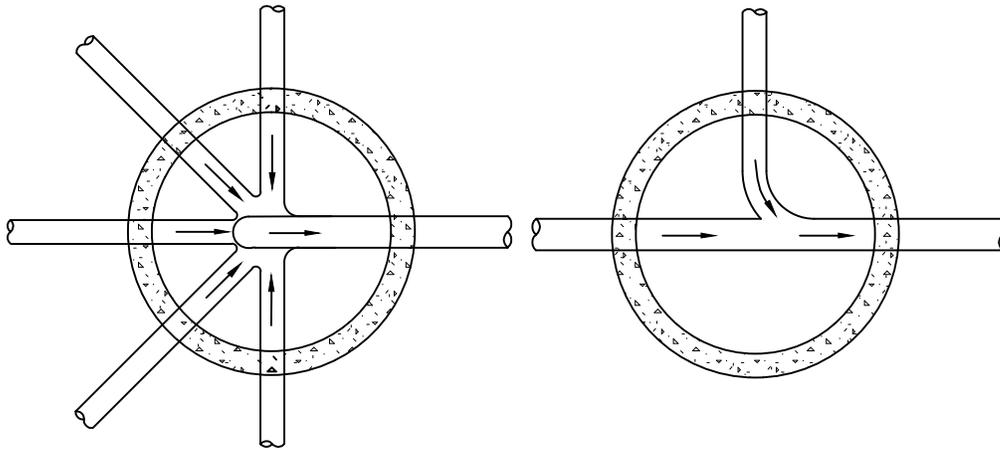
SCALE
 1:3
 STANDARD
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FLOWLINE OF LATERALS SHOULD BE A MINIMUM OF 1 1/2 INCHES ABOVE THE FLOWLINE OF THE MAIN

LATERAL

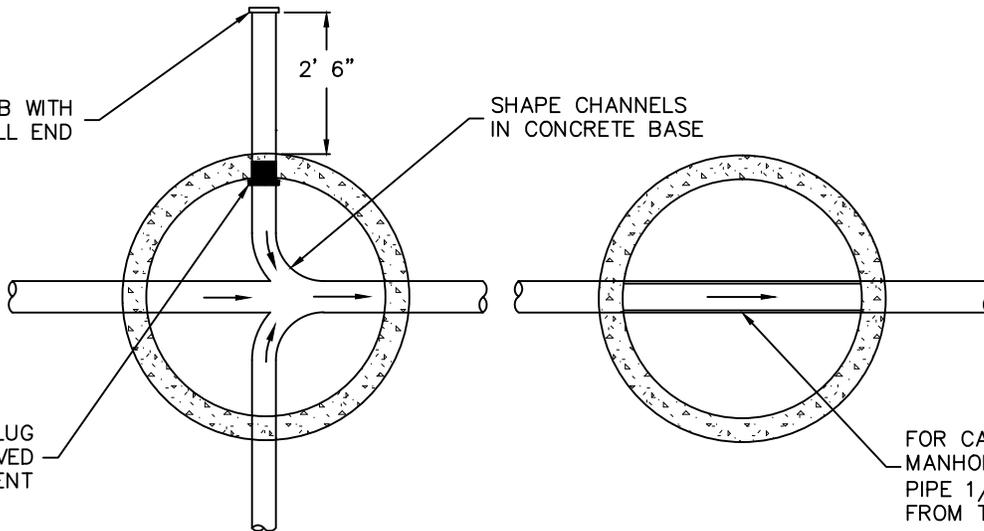


LATERAL SECTION



SEWER LINE STUB WITH A PLUGGED BELL END

SHAPE CHANNELS IN CONCRETE BASE



BRANT PLUG OR APPROVED EQUIVALENT

FOR CAST IN PLACE MANHOLES, CUT EXISTING PIPE 1/3 THE DIAMETER FROM THE TOP

PLAN VIEWS

- NOTES:
1. THERE SHALL BE 1/10 FOOT FALL THROUGH ALL MANHOLES.
 2. MANHOLES INSTALLED OVER EXISTING SEWERS SHALL BE CAST IN PLACE OVER A SECTION OF EXISTING PIPE WITH THE TOP OF PIPE CUT OFF.

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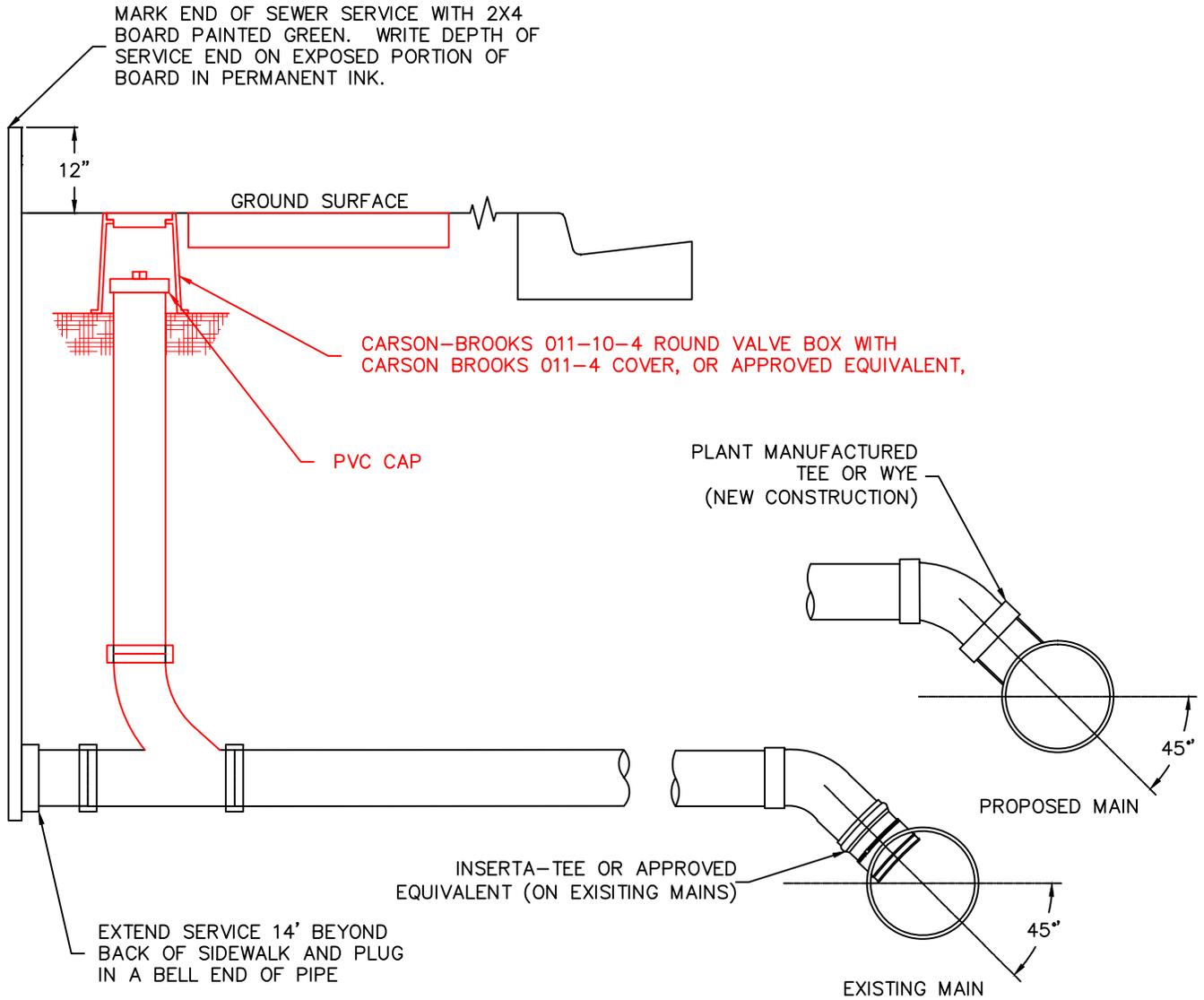


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REVISION	DATE	BY

STANDARD DRAWING
SEWER MANHOLE FLOWS

SCALE
1:4
STANDARD
23 OF 65



- NOTES:
1. THE MINIMUM SLOPE IS 2% FOR A 4" LATERAL AND 1% FOR A 6" LATERAL.
 2. SEWER LATERALS SHALL HAVE A MINIMUM OF 42" OF COVER FROM FINISH GRADE AT PROPERTY LINE AND 36" AT PLUG.
 3. INSERTA-TEE MAY ONLY BE USED WHEN APPROVED BY CITY ENGINEER.

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 CHECK: CMT
 DATE: 8/11/11



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STANDARD DRAWING
 SEWER SERVICE

SCALE
 NONE
 STANDARD
 24 OF 65

SIZING MANHOLES
MULTIPLE HOLES AT THE SAME ELEVATION

FORMULA:

$M \times \text{ANGLE} = Y$

M = CIRCUMFERENCE/360 DEGREES (SEE TABLE TO RIGHT)
Y = ARC DISTANCE BETWEEN THE CENTER LINE OF PIPES

$A = Y - ([\text{PIPE \#1 ARC SIZE}] / 2) - ([\text{PIPE \#2 ARC SIZE}] / 2)$
A = DISTANCE BETWEEN OPENINGS

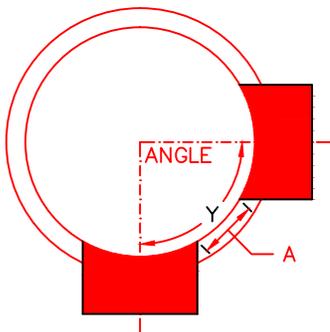
MANHOLE
DIAMETER

M
IN/DEG

48 IN.	0.419
60 IN.	0.524
72 IN.	0.628
84 IN.	0.733
96 IN.	0.838

SUGGESTED "A" DISTANCE IS 6" OR GREATER FOR 48" THROUGH 72" DIAMETER MANHOLES. FOR GREATER THAN 72" DIAMETER MANHOLES SUGGESTED "A" IS 8" OR GREATER.

PIPE DIAM. (IN.)	PIPE OD (IN.)*	CORE HOLE (IN.)	48" DIAM.	60" DIAM.	72" DIAM.	84" DIAM.	96" DIAM.
			12	16.5	20.5	21.2	20.9
15	19.8	23.8	24.8	24.4	24.2	24.1	24.0
18	23.0	27.0	28.7	28.0	27.7	27.5	27.4
21	27.0	31.0	33.7	32.6	32.0	31.8	31.6
24	30.0	34.0	37.8	36.1	35.4	35.0	34.8
27	35.0	39.0		42.5	41.2	40.6	40.2
30	38.3	42.3		46.9	45.2	44.3	43.8
36	45.9	49.9			55.1	53.4	52.5
42	52.2	56.2			64.5	61.6	60.1
48	59.4	63.4			77.6	71.9	69.3
54	65.0	69.0				81.0	77.0
60	72.0	76.0					87.7



* PIPE OD IS FOR "B" WALL PIPE. OTHER PIPE OD'S CAN NOT USE THIS TABLE.
THE TABLE ASSUMES THAT FOR PIPE SIZES UP TO 30" IN DIAMETER A "BOOT" WILL BE INSTALLED

- NOTES:
1. THESE DIMENSIONS ARE FURNISHED FOR INFORMATION ONLY. ALL DIMENSIONS SHOWN ARE SHEET SPECIFIC. USE OF THESE DIMENSIONS OR EXAMPLE CALCULATIONS MUST BE CHECKED BY THE USER'S ENGINEER ENSURING ADEQUACY FOR THE INTENDED USE.
 2. REVISIONS OR ADDITIONS TO THE ABOVE MAY BE ISSUED PERIODICALLY AND IT SHALL BE THE RESPONSIBILITY OF THE RECEIVER OF THESE FILES TO KEEP THEM CURRENT WITH ANY UPDATES.

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DATE: 8/11/11

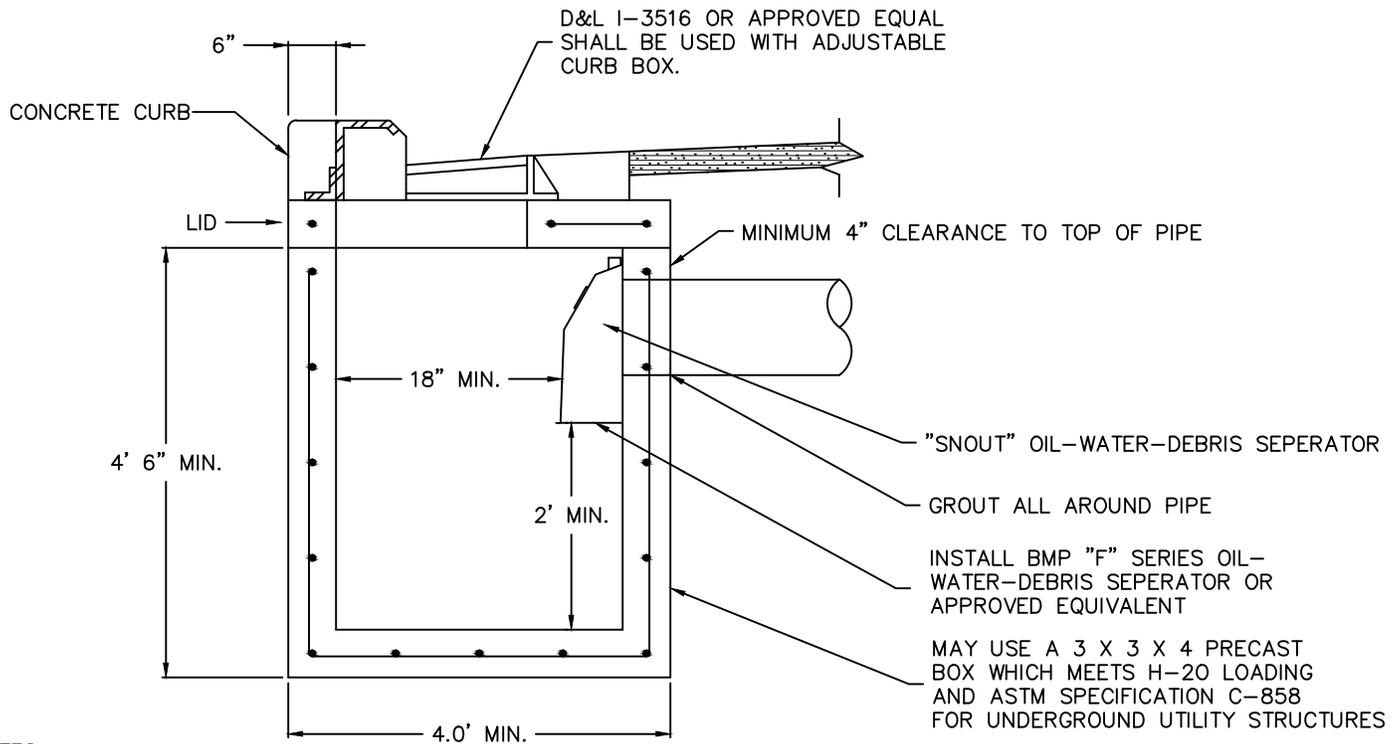
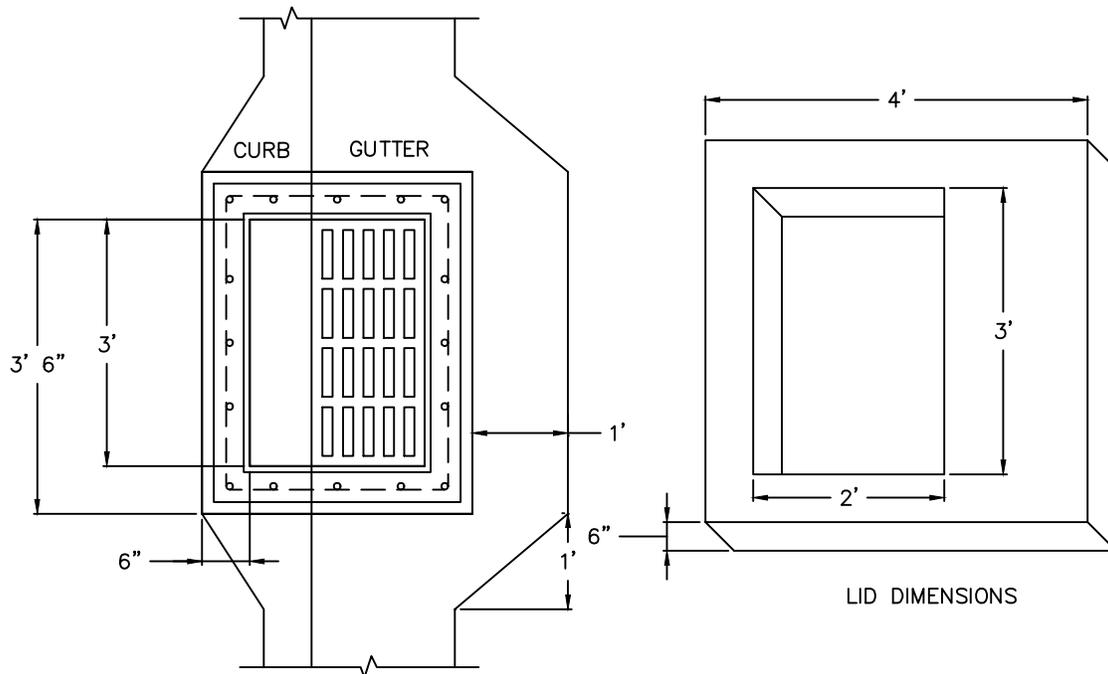


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REVISION	DATE	BY

STANDARD DRAWING
MANHOLE SIZING

SCALE
1:5
STANDARD
25 OF 65



NOTES:

1. ALL STORM TRANSMISSION LINES SHALL RUN THROUGH STORM MANHOLES.
2. BOX SHALL BE SIZED ACCORDING TO TABLE ON STANDARD #29.
3. #4 REBAR WILL BE SPACED AT MINIMUM OF 12" O.C. IN ALL DIRECTIONS IN CONCRETE.
4. ALL REBAR SHALL OVERLAP A MINIMUM OF 14".
5. "SNOUT" OIL-WATER-DEBRIS SEPERATOR SHALL BE INSTALLED TO MANUFACTURER'S SPECIFICATIONS.
6. USE HDPE BOX FOR HDPE PIPE WHEN APPROVED BY CITY ENGINEER OR HIS/HER DESIGNEE.

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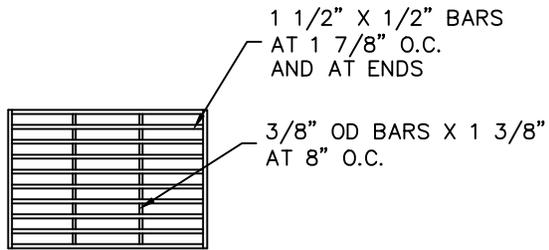


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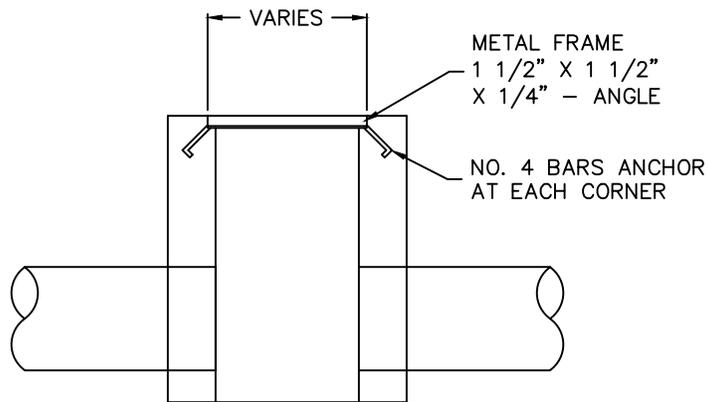
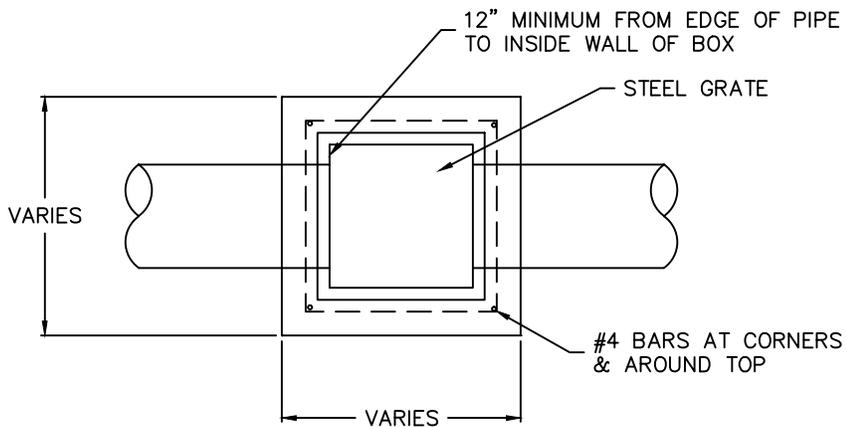
REVISION	DATE	BY

STANDARD DRAWING
 INLET BOX

SCALE
 1:2
 STANDARD
 26 OF 65



STEEL GRATE



STANDARD CLEANOUT BOX

NOTES:

1. GRATE SHALL BE BICYCLE SAFE AND TRAFFIC RATED.
2. BOX SHALL BE SIZED ACCORDING TO TABLE ON STANDARD #29.

DRAWN:	JAP
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DATE:	8/11/11



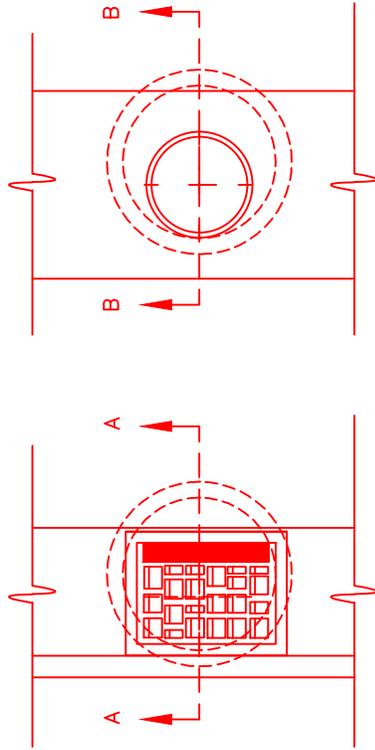
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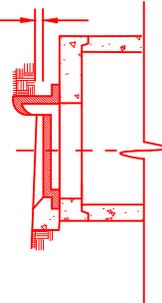
STANDARD DRAWING
CLEANOUT BOX

SCALE 1:2
STANDARD 27 OF 65

CROSS GUTTER INSTALLATIONS REQUIRE HEAVY DUTY GRATED LID & RING (D & L C-2670 OR EQUIVALENT); CURB-FACED INLET GRATE INSTALLATIONS REQUIRE HEAVY DUTY GRATED LID & RING (D & L I-3517 OR EQUIVALENT).



SET TOP OF MANHOLE 1" BELOW FLOWLINE OF GUTTER.

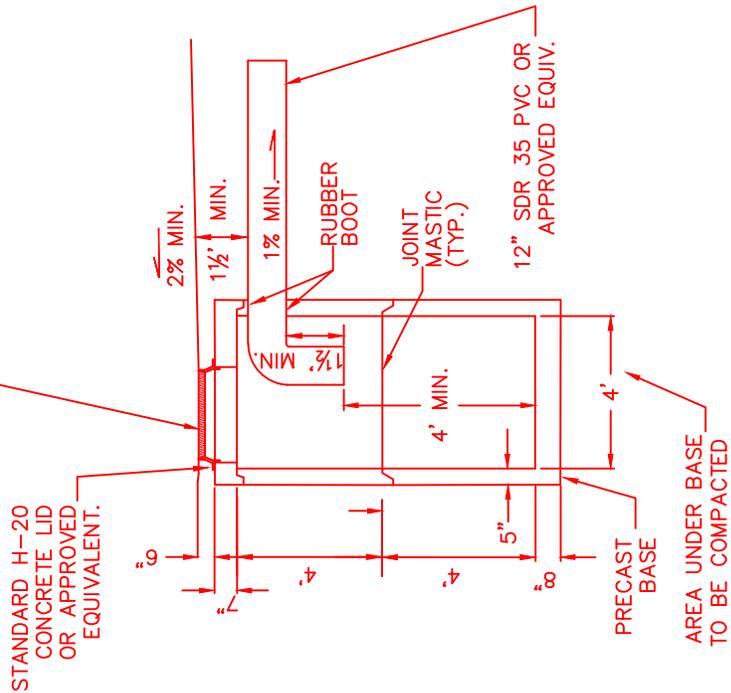


CURB & GUTTER SECTION A-A

SET TOP OF MANHOLE 1" BELOW FLOWLINE OF CROSS GUTTER.



CROSS GUTTER SECTION B-B



PRE-TREATMENT CATCH BASIN CROSS-SECTION

NOTES:

1. MANHOLE BASE AND ALL SECTIONS SHALL BE PRECAST TO CONFORM TO ASTM C478.
2. THE PRE-TREATMENT MANHOLE SHALL BE CONSTRUCTED TO ENSURE WATER TIGHTNESS
3. THE SUMP LID SHALL NOT BE LOCATED IN THE SIDEWALK SECTION
4. ANY APPROVED EQUIVALENTS REQUIRE CITY ENGINEER'S WRITTEN APPROVAL

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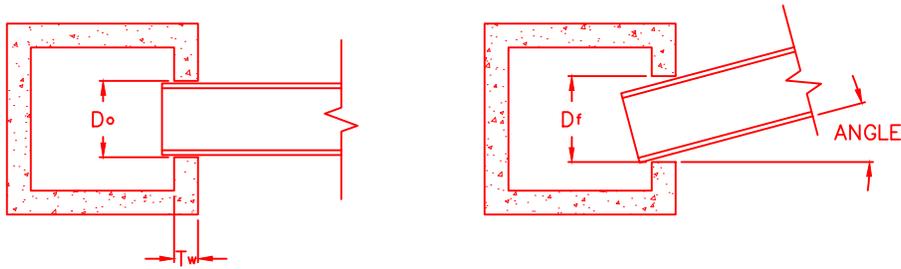
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REVISION	DATE	BY

STANDARD DRAWING
DROP INLET

SCALE
NONE
STANDARD
28 OF 65

CLEANOUT AND INLET SIZING GUIDELINES



D_o : THE ORIGINAL DIAMETER OF THE INLET OR THE OUTER DIAMETER (OD) OF THE PIPE IF THE PIPE IS PURPENDICULAR TO THE INLET BOX.

D_f : THE FINAL ADJUSTED SIZE OF THE INLET WHEN THE PIPE IS SKEWED.

T_w : THE THICKNESS OF THE WALL (6" FOR THE TABLE BELOW).

ANGLE: THE ANGLE AT WHICH THE PIPE IS SKEWED.

FORMULA:

$$D_f = (OD \times 1/\cos(\text{ANGLE})) + (\tan(\text{ANGLE}) \times T_w)$$

CONCRETE PIPE OUTER DIAMETERS BASED ON 6" CLEANOUT WALL THICKNESS AND PIPE ANGLE AT CLEANOUT							
ANGLE OF PIPE ENTERING BOX	0°	5°	10°	15°	20°	30°	45°
INSIDE DIAMETER (ID)	OUTSIDE BARREL DIAMETER (OD)						
12.0"	16.5"	17.1"	17.8"	18.7"	19.7"	22.5"	29.3"
15.0"	19.8"	20.4"	21.1"	22.1"	23.2"	26.3"	33.9"
18.0"	23.0"	23.6"	24.4"	25.4"	26.7"	30.0"	38.5"
21.0"	27.0"	27.6"	28.5"	29.6"	30.9"	34.6"	44.2"
24.0"	30.0"	30.6"	31.5"	32.7"	34.1"	38.1"	48.4"
27.0"	35.0"	35.7"	36.6"	37.8"	39.4"	43.9"	55.5"
30.0"	38.3"	38.9"	39.9"	41.2"	42.9"	47.6"	60.1"
36.0"	45.9"	46.6"	47.6"	49.1"	51.0"	56.4"	
42.0"	52.2"	53.0"	54.1"	55.7"	57.8"	63.8"	
48.0"	59.4"	60.2"	61.4"	63.1"			
54.0"							
60.0"							
66.0"							
72.0"							
84.0"							
90.0"							
96.0"							

NOTES:

- TABLE IS BASED ON A 6" WALL THICKNESS AND PIPE ANGLE AT CLEANOUT.
- SHADED AREAS BELOW THE DARK LINE INDICATE PIPE SIZES AND ANGLES THAT WILL NOT FIT WITHIN A STANDARD 6' WALL BOX. SPECIAL BOX SIZES ARE NECESSARY FOR THESE CONDITIONS.
- USE OF THIS TABLE (INCLUDING DESIGN & DIMENSIONS) SHOULD BE ANALYZED AND CHECKED BY THE USER'S ENGINEER TO ENSURE ADEQUACY FOR THE INTENDED USE.
- ALL BOXES SHALL HAVE A MINIMUM OF 6" OF SURROUNDING CONCRETE BOX COVERAGE.

DRAWN: JAP	 <p>SPANISH FORK CITY 40 SOUTH MAIN STREET SPANISH FORK, UT 84660 (801) 798-5000</p>	REVISION	DATE	BY	STANDARD DRAWING BOX SIZING	SCALE NONE
DESIGN: TJB						STANDARD 29 OF 65
CHECK: CMT						
DATE: 8/11/11						

DRAWN	RMR
DESIGN	TJB
CHECK	CMT
DATE	8/11/11

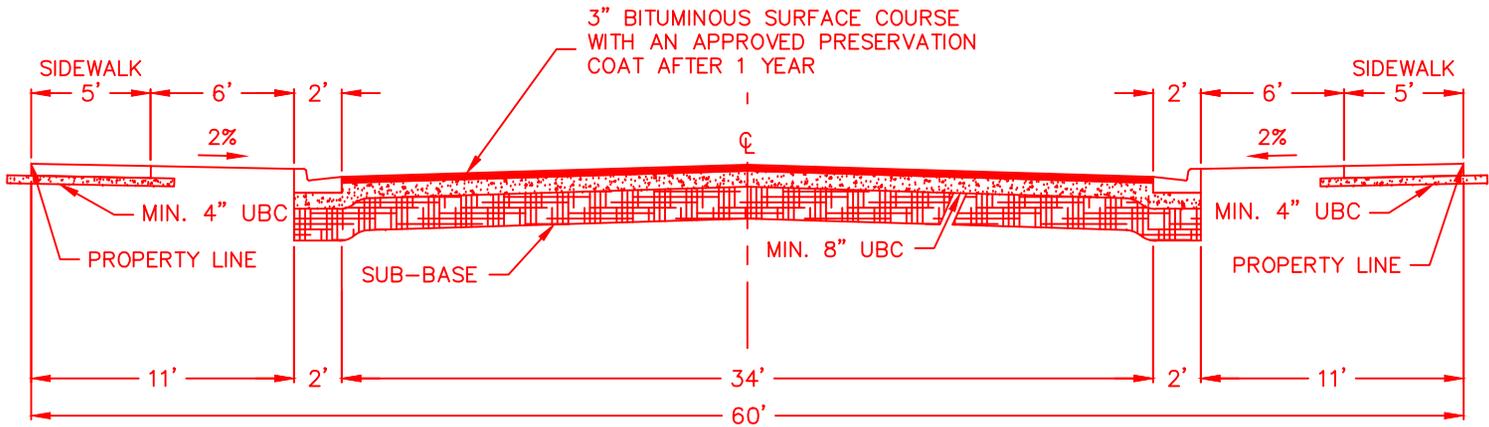


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DRAFT FOR CITY COUNCIL		

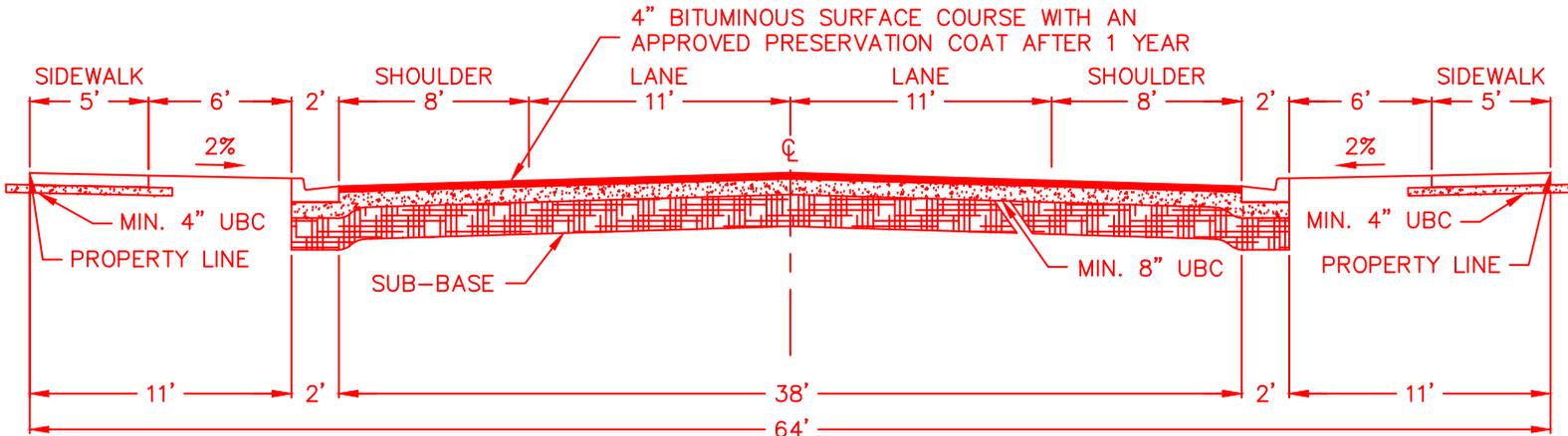
STANDARD DRAWING
 RESIDENTIAL LOCAL
 CROSS SECTION

SCALE
 VARIES
 STANDARD
 30 OF 65



NOTES:

1. SEE STANDARD DRAWING FOR SIDEWALKS.
2. 6' PLANTER AREAS SHALL BE PLANTED WITH GRASS AND TREES AS APPROVED BY THE CITY. SPRINKLER SYSTEMS SHALL BE INSTALLED ACCORDING TO CITY STANDARDS.
3. SUB-BASE AS SPECIFIED IN THE CONSTRUCTION AND DEVELOPMENT STANDARDS AND SOILS REPORT.
4. MINIMUM OF 8" UNTREATED BASE COURSE UNLESS MORE REQUIRED BY SOILS REPORT.
5. ALL ADJUSTMENT TO UTILITIES LOCATIONS SHALL BE APPROVED BY CITY ENGINEER.



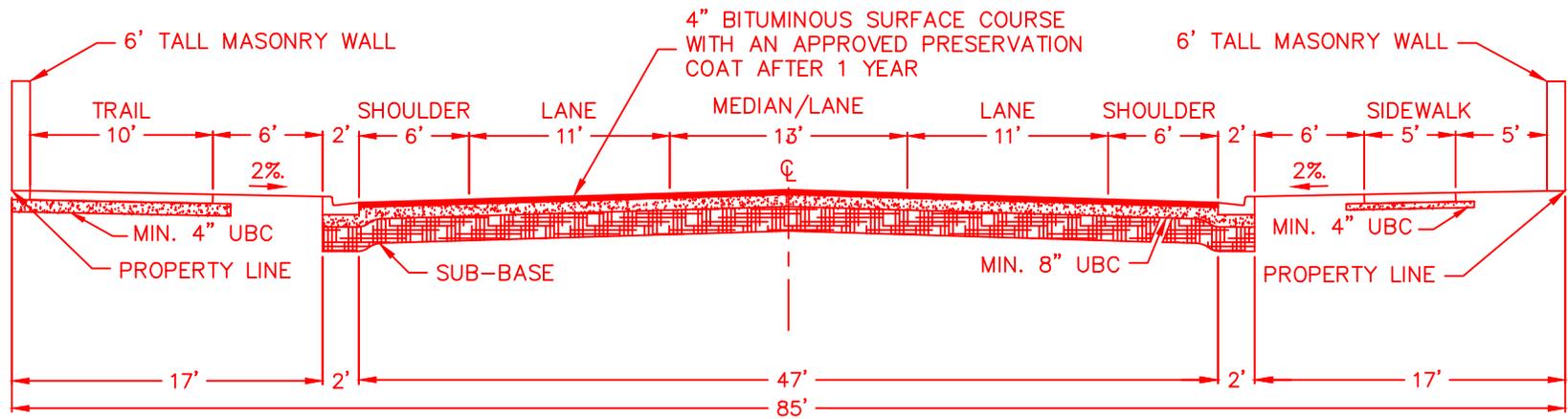
NOTES:

1. SEE STANDARD DRAWING FOR SIDEWALKS.
2. 6' PLANTER AREAS SHALL BE PLANTED WITH GRASS AND TREES AS APPROVED BY THE CITY. SPRINKLER SYSTEMS SHALL BE INSTALLED ACCORDING TO CITY STANDARDS.
3. SUB-BASE AS SPECIFIED IN THE CONSTRUCTION AND DEVELOPMENT STANDARDS AND SOILS REPORT.
4. MINIMUM OF 8" UNTREATED BASE COURSE UNLESS MORE REQUIRED BY SOILS REPORT.
5. ALL ADJUSTMENT TO UTILITIES LOCATIONS SHALL BE APPROVED BY CITY ENGINEER.

DRAWN	RMR	REVISION	DATE	BY	STANDARD DRAWING COMMERCIAL LOCAL CROSS SECTION	SCALE
DESIGN	TJB	DRAFT FOR CITY COUNCIL				VARIABLES
CHECK	CMT					STANDARD
DATE	8/11/11					31 OF 65



SPANISH FORK CITY
40 SOUTH MAIN STREET
SPANISH FORK, UT 84660
(801) 798-5000



NOTES:

1. CITY ENGINEER MAY WAIVE THE REQUIREMENT FOR A WALL.
2. SEE STANDARD DRAWING FOR TRAILS AND SIDEWALKS.
3. TRAILS SHALL BE CONSTRUCTED ACCORDING TO THE TRAILS MASTER PLAN. IF THERE IS NO TRAIL TO BE INSTALLED ALONG STREET SIDEWALK SECTION SHALL BE INSTALLED ON BOTH SIDES OF STREET.
4. 6' PLANTER AREAS SHALL BE PLANTED WITH GRASS AND TREES AS APPROVED BY THE CITY. PLANTERS BEHIND THE SIDEWALK SHALL HAVE SHRUBS AND BARK OR XERISCAPE AS APPROVED BY THE CITY. SPRINKLER SYSTEMS SHALL BE INSTALLED ACCORDING TO CITY STANDARDS.
5. SUB-BASE AS SPECIFIED IN THE CONSTRUCTION AND DEVELOPMENT STANDARDS AND SOILS REPORT.
6. MINIMUM OF 8" UNTREATED BASE COURSE UNLESS MORE REQUIRED BY SOILS REPORT.
5. ALL ADJUSTMENT TO UTILITIES LOCATIONS SHALL BE APPROVED BY CITY ENGINEER.
6. ALL UTILITY BOXES AND EQUIPMENT SHALL BE ON THE STREET SIDE OF MASONRY WALL.

DRAWN	RWR
DESIGN	TJB
CHECK	CMT
DATE	8/11/11



SPANISH FORK CITY
 40 SOUTH MAIN STREET
 SPANISH FORK, UT 84660
 (801) 798-5000

REVISION	DATE	BY
DRAFT FOR CITY COUNCIL		

STANDARD DRAWING
 COLLECTOR
 CROSS SECTION

SCALE
 VARIES
 STANDARD
 32 OF 65

DRAWN	RMR
DESIGN	TJB
CHECK	CMT
DATE	8/11/11



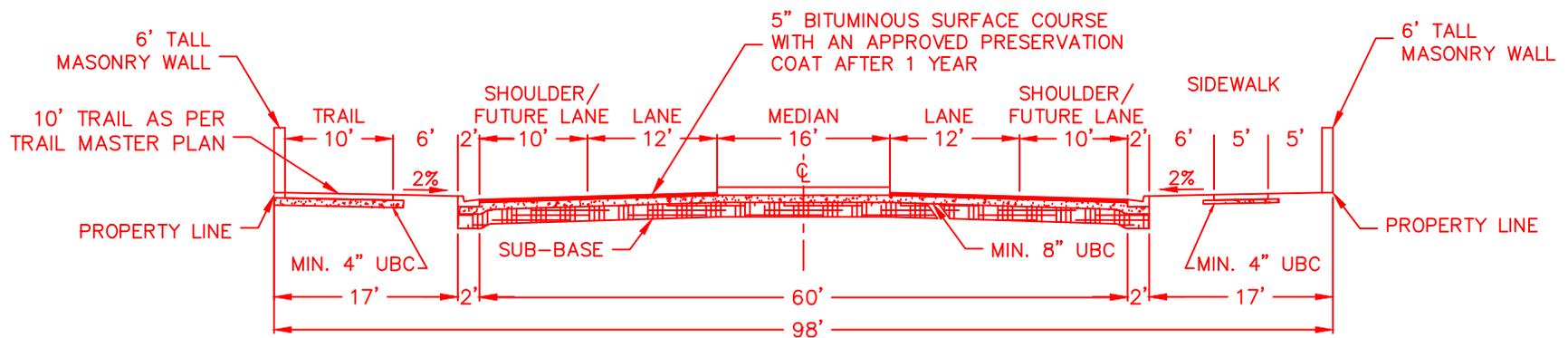
SPANISH FORK CITY
 40 SOUTH MAIN STREET
 SPANISH FORK, UT 84660
 (801) 798-5000

REVISION	DATE	BY
DRAFT FOR CITY COUNCIL		

DATE	BY

STANDARD DRAWING
 MINOR ARTERIAL
 CROSS SECTION

SCALE
 VARIES
 STANDARD
 33 OF 65



- NOTES:
1. CITY ENGINEER MAY WAIVE THE REQUIREMENT FOR A WALL.
 2. SEE STANDARD DRAWING FOR TRAILS AND SIDEWALKS.
 3. TRAILS SHALL BE CONSTRUCTED ACCORDING TO THE TRAILS MASTER PLAN. IF THERE IS NO TRAIL TO BE INSTALLED ALONG STREET SIDEWALK SECTION SHALL BE INSTALLED ON BOTH SIDES OF STREET.
 4. 6' PLANTER AREAS SHALL BE PLANTED WITH GRASS AND TREES AS APPROVED BY THE CITY. PLANTERS BEHIND THE SIDEWALK SHALL HAVE SHRUBS AND BARK OR XERISCAPE AS APPROVED BY THE CITY. SPRINKLER SYSTEMS SHALL BE INSTALLED ACCORDING TO CITY STANDARDS.
 5. SUB-BASE AS SPECIFIED IN THE CONSTRUCTION AND DEVELOPMENT STANDARDS AND SOILS REPORT.
 6. MINIMUM OF 8" UNTREATED BASE COURSE UNLESS MORE REQUIRED BY SOILS REPORT.
 7. ALL ADJUSTMENT TO UTILITIES LOCATIONS SHALL BE APPROVED BY CITY ENGINEER.
 8. ALL UTILITY BOXES AND EQUIPMENT SHALL BE ON THE STREET SIDE OF MASONRY WALL.

DRAWN	RMR
DESIGN	TJB
CHECK	CMT
DATE	8/11/11



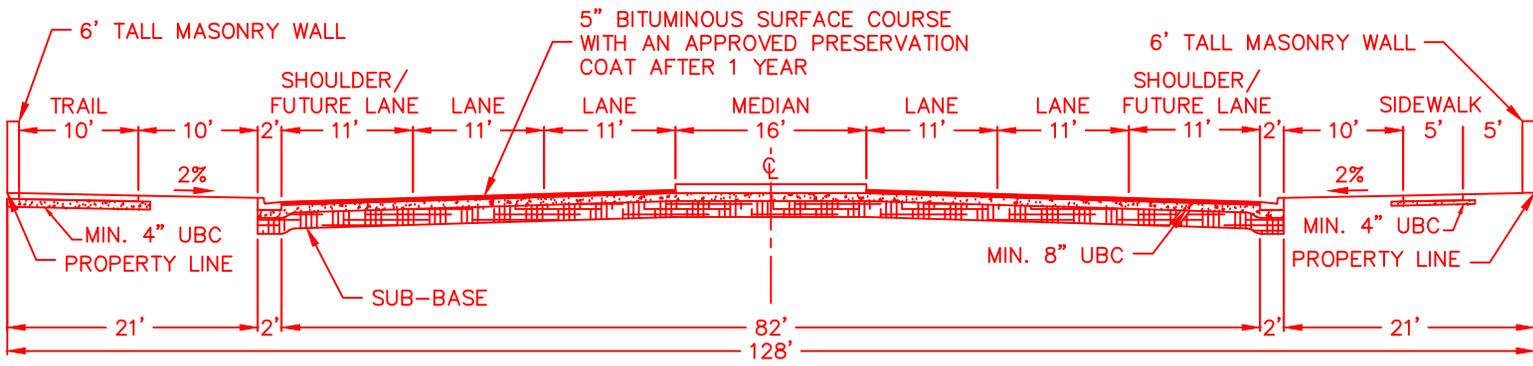
SPANISH FORK CITY
 40 SOUTH MAIN STREET
 SPANISH FORK, UT 84660
 (801) 798-5000

REVISION	DATE	BY
DRAFT FOR CITY COUNCIL		

DATE	BY

STANDARD DRAWING
 MAJOR ARTERIAL
 CROSS SECTION

SCALE
 VARIES
 STANDARD
 3/4 OF 65



- NOTES:
1. CITY ENGINEER MAY WAIVE THE REQUIREMENT FOR A WALL.
 2. SEE STANDARD DRAWING FOR TRAILS AND SIDEWALKS.
 3. TRAILS SHALL BE CONSTRUCTED ACCORDING TO THE TRAILS MASTER PLAN. IF THERE IS NO TRAIL TO BE INSTALLED ALONG STREET SIDEWALK SECTION SHALL BE INSTALLED ON BOTH SIDES OF STREET.
 4. 6' PLANTER AREAS SHALL BE PLANTED WITH GRASS AND TREES AS APPROVED BY THE CITY. PLANTERS BEHIND THE SIDEWALK SHALL HAVE SHRUBS AND BARK OR XERISCAPE AS APPROVED BY THE CITY. SPRINKLER SYSTEMS SHALL BE INSTALLED ACCORDING TO CITY STANDARDS.
 5. SUB-BASE AS SPECIFIED IN THE CONSTRUCTION AND DEVELOPMENT STANDARDS AND SOILS REPORT.
 6. MINIMUM OF 8" UNTREATED BASE COURSE UNLESS MORE REQUIRED BY SOILS REPORT.
 7. ALL ADJUSTMENT TO UTILITIES LOCATIONS SHALL BE APPROVED BY CITY ENGINEER.
 8. ALL UTILITY BOXES AND EQUIPMENT SHALL BE ON THE STREET SIDE OF MASONRY WALL.

DRAWN	RWR
DESIGN	TJB
CHECK	CMT
DATE	8/11/11



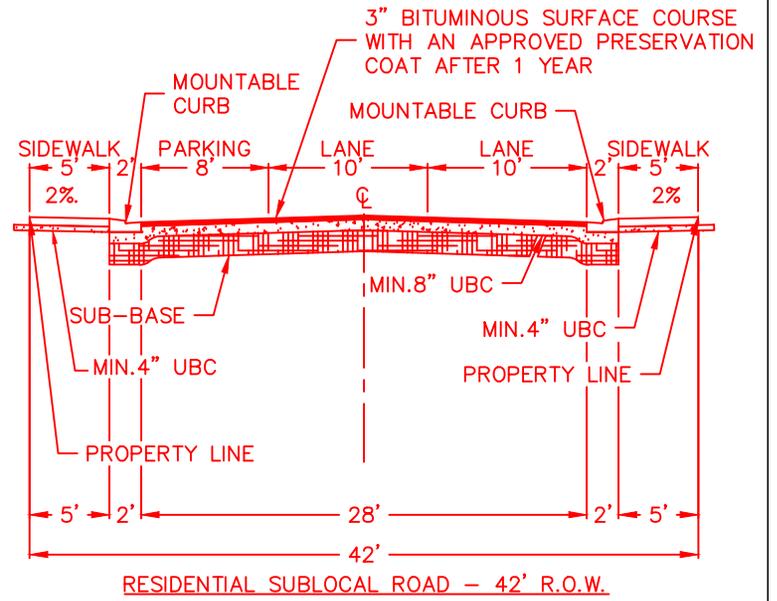
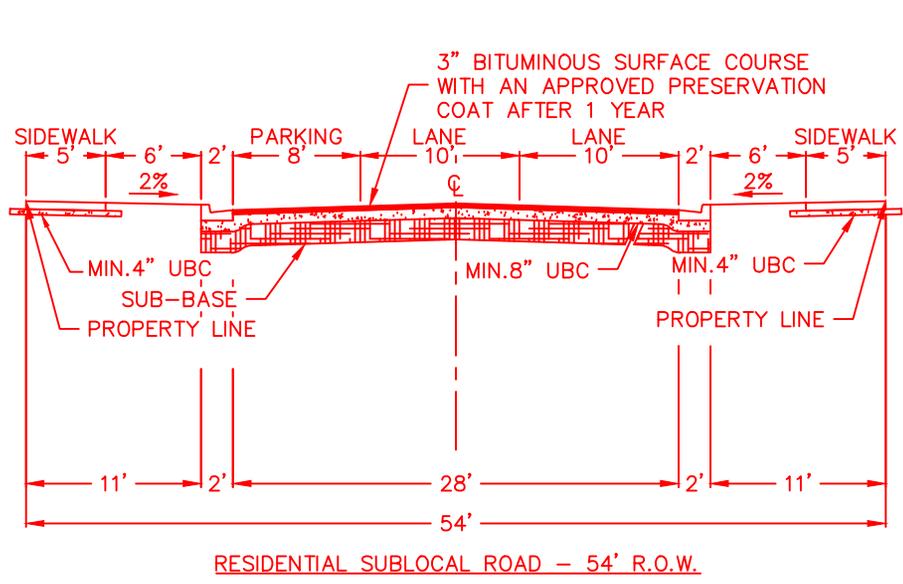
SPANISH FORK CITY
 40 SOUTH MAIN STREET
 SPANISH FORK, UT 84660
 (801) 798-5000

REVISION	DATE	BY
DRAFT FOR CITY COUNCIL		

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STANDARD DRAWING
 RESIDENTIAL SUB-LOCAL
 CROSS SECTION

SCALE
 VARIES
 STANDARD
 35 OF 65



- NOTES:
1. 54' R.O.W. ONLY APPROVED FOR STREETS THAT ARE LESS THAN 800 FT. IN LENGTH AND LESS THAN 400 ANTICIPATED ADT.
 2. 42' R.O.W. ONLY APPROVED FOR STREETS THAT ARE LESS THAN 600 FT. IN LENGTH AND LESS THAN 300 ANTICIPATED ADT.
 3. A SUB-LOCAL STREET MAY NOT INTERSECT WITH ANOTHER SUB-LOCAL STREET.
 4. 42' R.O.W. MAY ONLY BE USED IN MULTI-FAMILY DEVELOPMENTS AND IS SUBJECT TO THE APPROVAL OF THE CITY ENGINEER OR HIS/HER DESIGNEE.
 5. THE CITY COUNCIL MAY WAIVE THE REQUIRED PARKSTIRP AND SIDEWALK ON ONE SIDE OF THE STREET.
 6. SUB-BASE AS SPECIFIED IN THE CONSTRUCTION AND DEVELOPMENT STANDARDS AND SOILS REPORT.
 7. MINIMUM OF 8" UNTREATED BASE COURSE UNLESS MORE REQUIRED BY SOILS REPORT.
 8. ALL ADJUSTMENT TO UTILITIES LOCATIONS SHALL BE APPROVED BY CITY ENGINEER.

DRAWN	JFU
DESIGN	CMT
CHECK	RJH
DATE	8/11/11

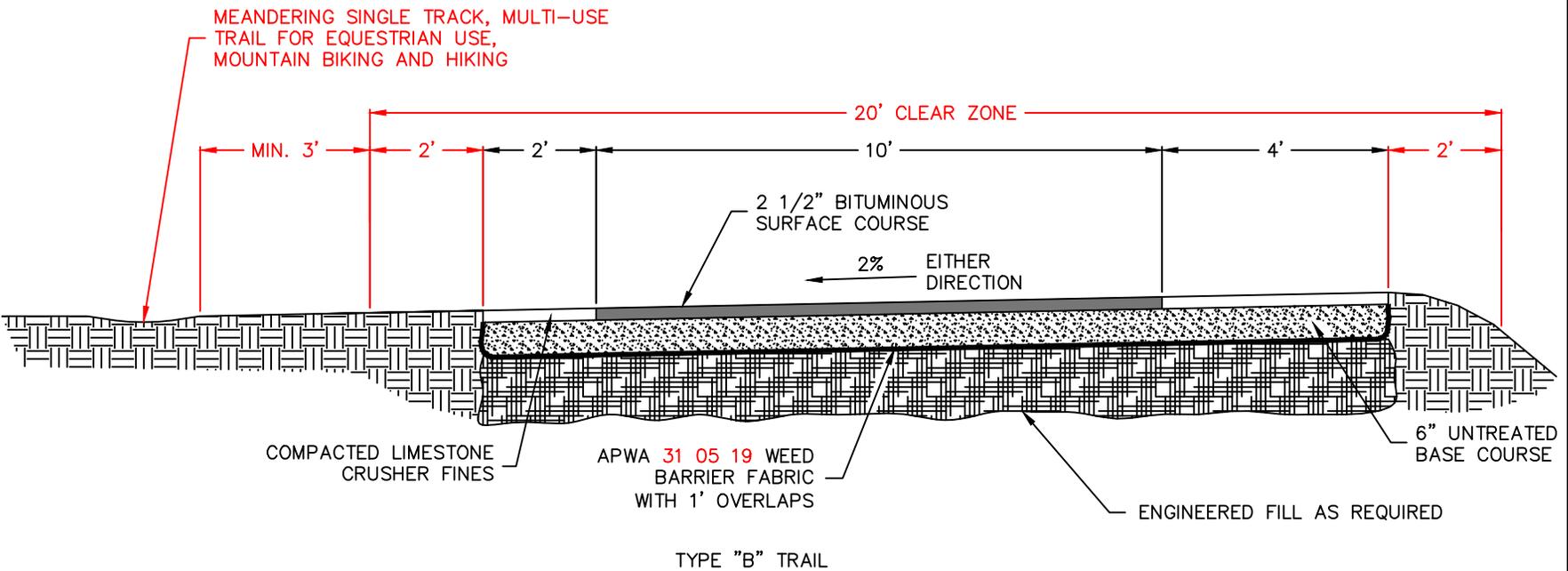
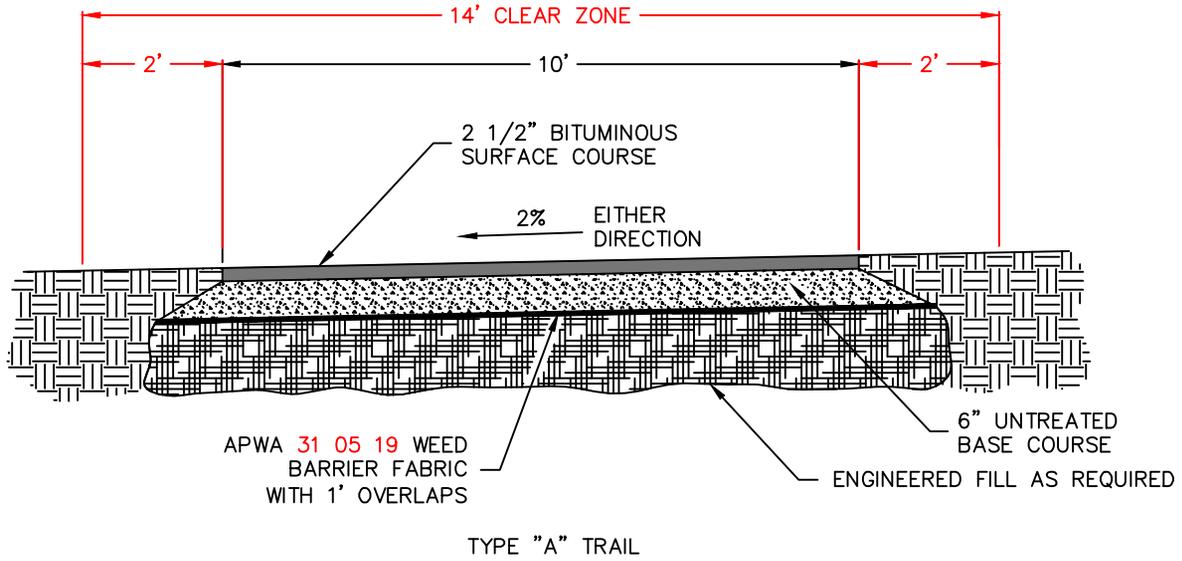


SPANISH FORK CITY
 40 SOUTH MAIN STREET
 SPANISH FORK, UT 84660
 (801) 798-5000

REVISION	DATE	BY

STANDARD DRAWING
 TYPE A & B
 TRAIL SECTIONS

SCALE	N/A
STANDARD	36A OF 65



- NOTES:
1. ALL TREES, SHRUBS AND OTHER VEGETATION SHALL BE REMOVED FROM THE CLEAR ZONE.
 2. CITY SHALL INSPECT EACH BASE COURSE OR FABRIC LAYER BEFORE COVERING.
 3. ALL WEEDS SHALL BE SPRAYED AND KILLED WITH ROUNDUP OR AN APPROVED EQUIVALENT ONE WEEK BEFORE ANY WORK MAY BE PERFORMED, AND WITHIN 3 WEEKS OF THE PLACEMENT OF UNTREATED BASE COURSE.
 4. TRAIL LANES SHALL BE DELINEATED BY A CENTER, SINGLE, DASHED, YELLOW LINE.

DRAWN	RWR
DESIGN	GMT
CHECK	RJH
DATE	8/11/11



SPANISH FORK CITY
 40 SOUTH MAIN STREET
 SPANISH FORK, UT 84660
 (801) 798-5000

REVISION

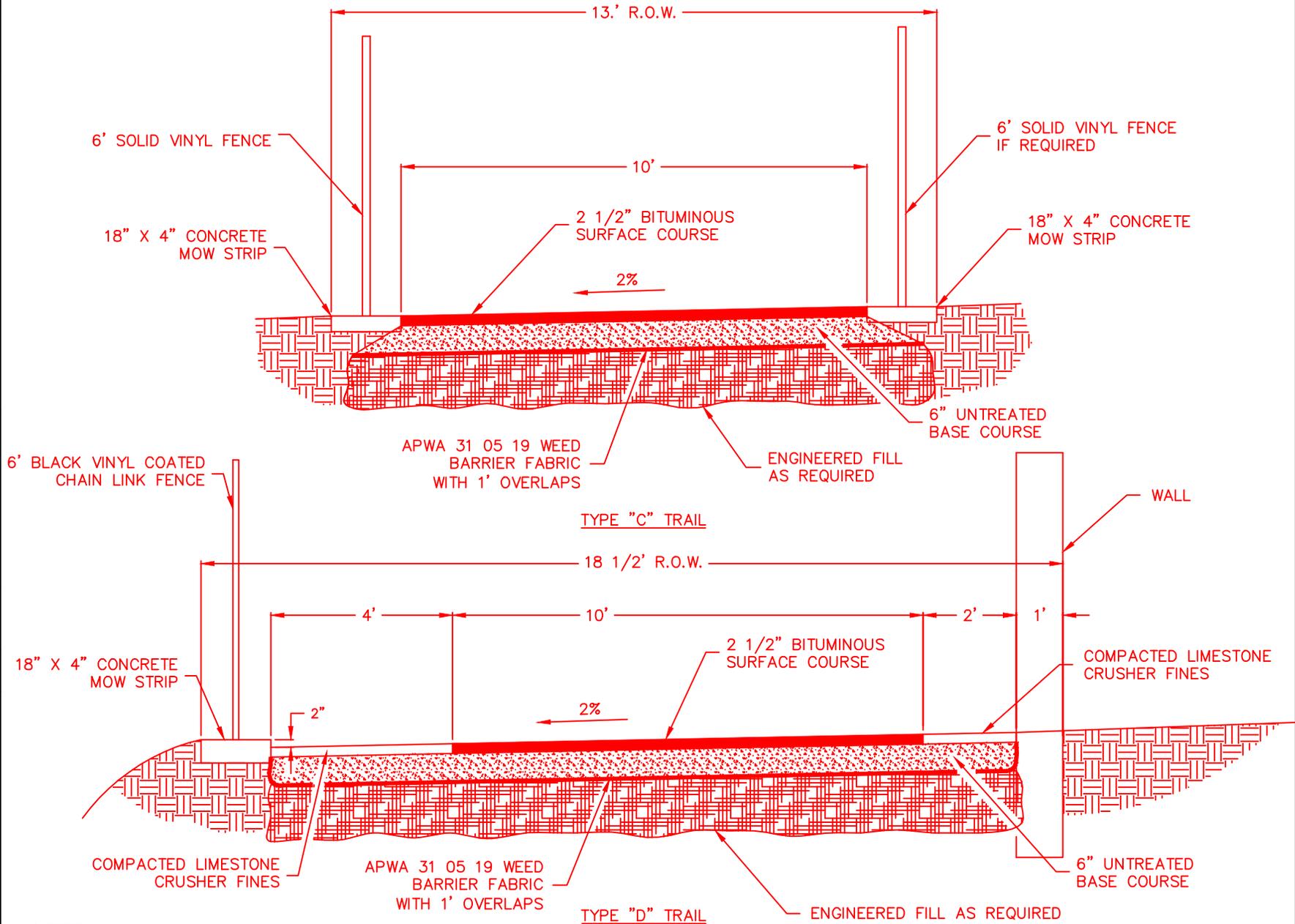
DATE

BY

STANDARD DRAWING
 TYPE C & D
 TRAIL SECTIONS

SCALE
 N/A

STANDARD
 36B OF 65



NOTES:

1. ALL TREES, SHRUBS AND OTHER VEGETATION SHALL BE REMOVED FROM THE CLEAR ZONE.
2. CITY SHALL INSPECT EACH BASE COURSE OR FABRIC LAYER BEFORE COVERING.
3. ALL WEEDS SHALL BE SPRAYED AND KILLED WITH ROUNDUP OR AN APPROVED EQUIVALENT ONE WEEK BEFORE ANY WORK MAY BE PERFORMED, AND WITHIN 3 WEEKS OF THE PLACEMENT OF UNTREATED BASE COURSE.
4. MOW STRIP AND FENCE POSTS SHALL BE IN PLACE BEFORE PAVING
5. TRAIL LANES SHALL BE DELINEATED BY A CENTER, SINGLE, DASHED, YELLOW LINE.

DRAWN	BKD
DESIGN	CMT
CHECK	RJH
DATE	8/11/11



SPANISH FORK CITY
 40 SOUTH MAIN STREET
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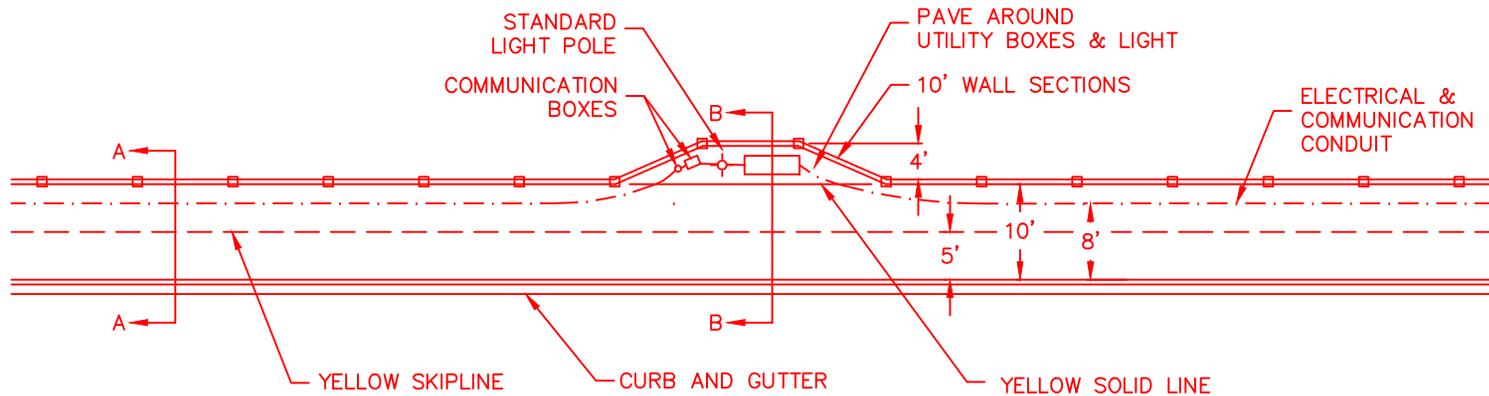
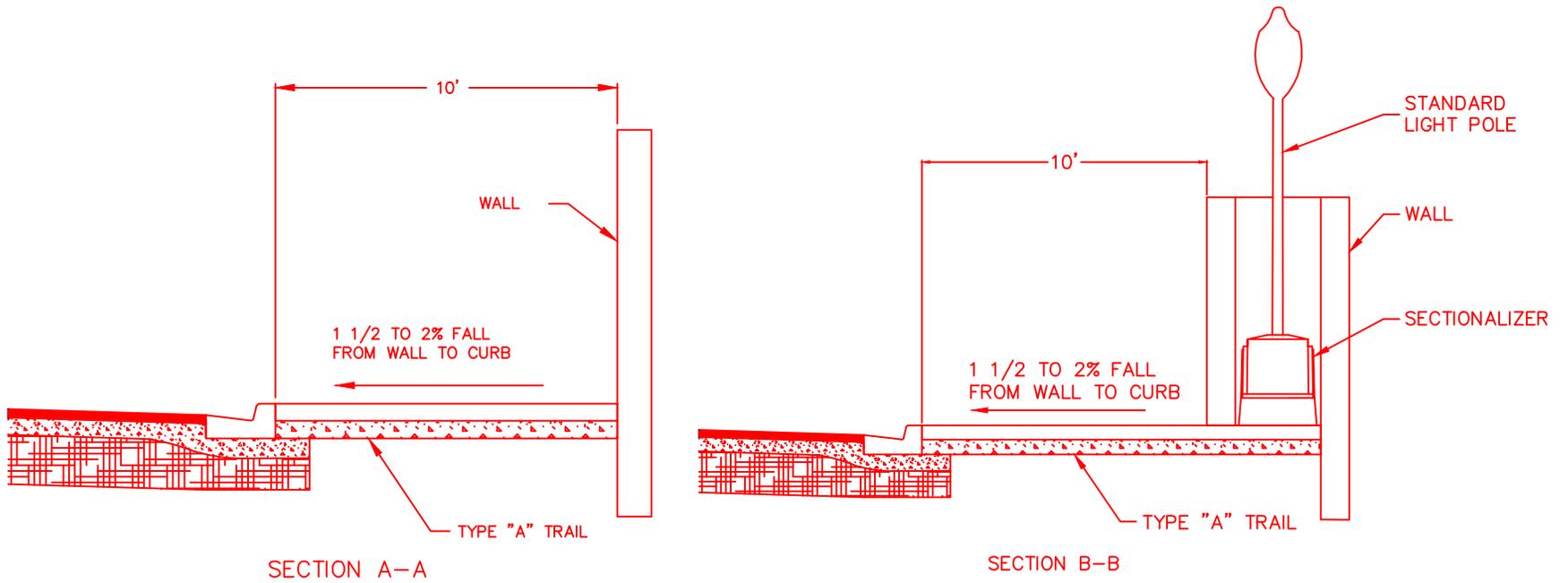
REVISION

DATE

BY

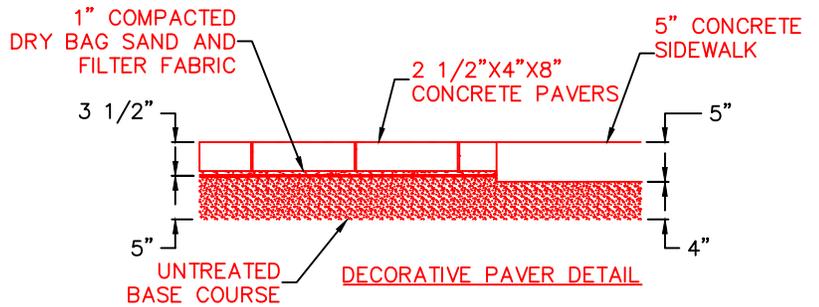
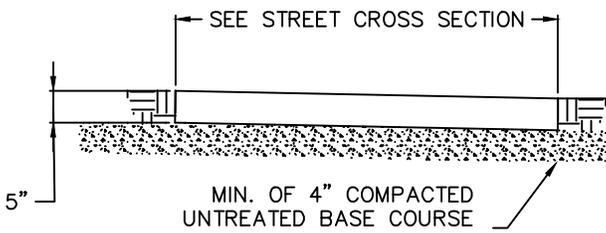
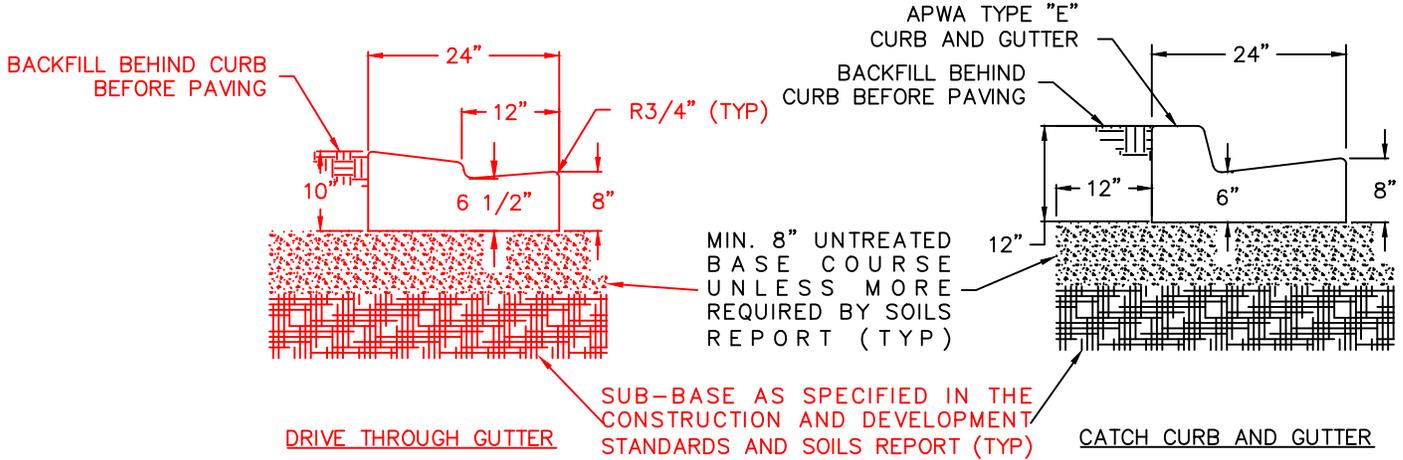
STANDARD DRAWING
 CURB SIDE TRAIL LAYOUT

SCALE
 NONE
 STANDARD
 36C OF 65

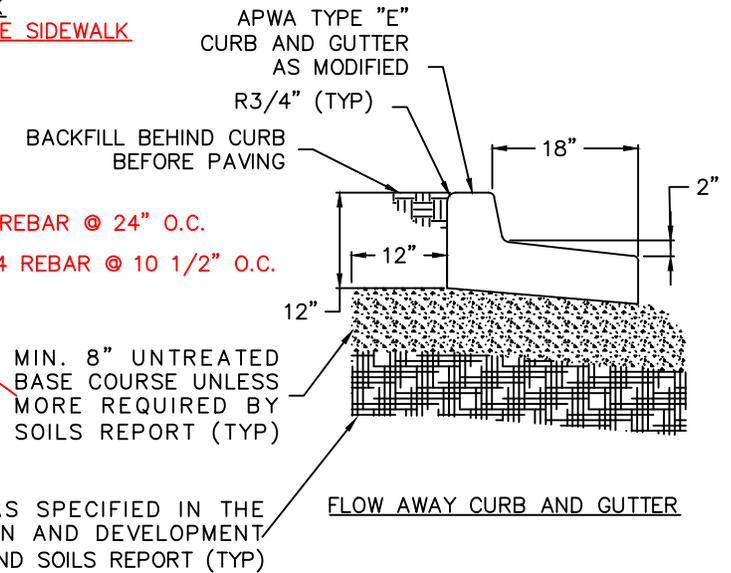
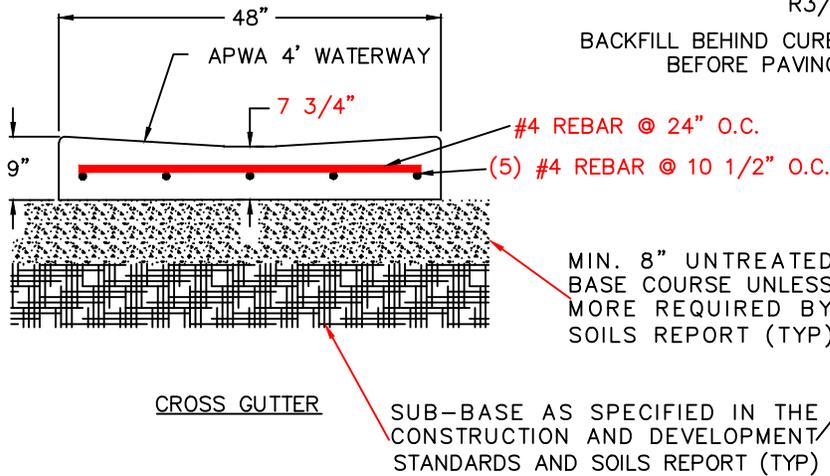


NOTE:

1. THIS TRAIL LAYOUT MAY ONLY BE USED WHEN AUTHORIZED BY THE CITY ENGINEER.
2. TRAIL LANES SHALL BE DELINEATED BY A CENTER, SINGLE, DASHED, YELLOW LINE.
3. BOXES SHALL BE PLACED ON PROPERTY LINES WHERE EVER POSSIBLE.



SIDEWALK
SEE APWA CONCRETE SIDEWALK



NOTES:

1. SUB-BASE UNDER ALL CURBS AND GUTTERS SHALL MATCH WHAT IS IN THE ROAD WITH A MINIMUM OF 8" OF COMPACTED UNTREATED BASE COURSE.
2. IF CONCRETE IS TO BE POURED NEXT TO A CURB #4 REBAR SHALL BE DOWELED 3" INTO CURB AND 4" INTO SIDEWALK. REBAR SHALL BE INSTALLED A MINIMUM OF 2" FROM TOP OF SIDEWALK AND CURB 24" O.C.
3. SIDEWALKS SHALL HAVE CONSTRUCTION JOINTS EVERY 5'.
4. TOP FRONT OF SIDEWALK SHALL BE PLACED AT THE SAME GRADE AS TOP BACK OF CURB.
5. TACK SHALL BE APPLIED TO LIP OF CURB AND EXTEND 1' ONTO GRAVEL ROAD BASE.
6. PAVERS, FABRIC, SAND MATERIAL AND INSTALLATION SHALL MEET THE SPECIFICATIONS AND REQUIREMENTS OF APWA 32 14 13 (PRECAST CONCRETE UNIT PAVING) AND 32 14 16 (BRICK UNIT PAVING).
7. ESTABLISH PAVER PATTERN TO ASSURE ALL CUT EDGE PAVERS SHALL BE HALF PAVERS OR LARGER.
8. ALL PAVERS SHALL MATCH THE ORIGINAL COLOR OF THE DARK RED CONCRETE PAVERS ON MAIN STREET

DRAWN: JAP
DESIGN: TJB
CHECK: CMT
DATE: 8/11/11

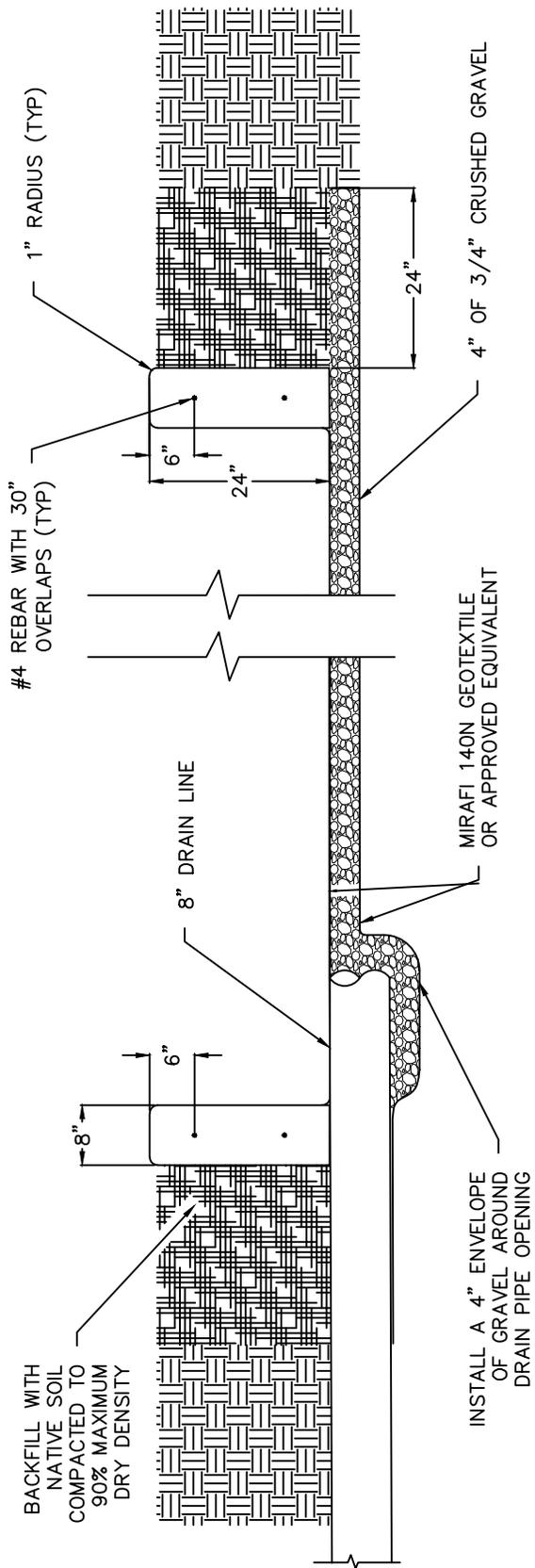


SPANISH FORK CITY
40 SOUTH MAIN STREET
SPANISH FORK, UT 84660
(801) 798-5000

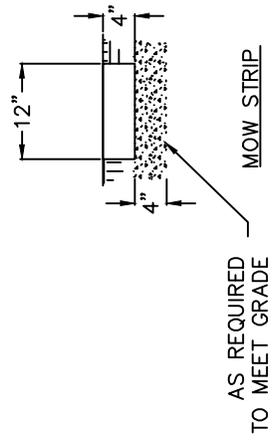
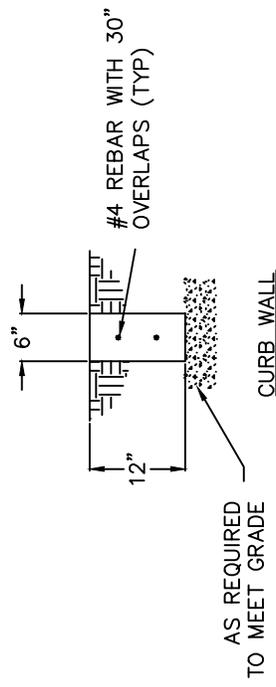
REVISION	DATE	BY

STANDARD DRAWING
CURB GUTTERS AND SIDEWALK

SCALE
1:2
STANDARD
37 OF 65



PLAYGROUND CURB WALL



- NOTES:
1. ENGINEERED BASE UNDER ALL CURBS AND GUTTERS SHALL MATCH WHAT IS IN THE ROAD WITH A MINIMUM OF 8" OF COMPACTED UNTREATED BASE COURSE. MOW STRIPS, SIDEWALKS, AND CURB WALLS SHALL HAVE A MINIMUM OF 4" OF COMPACTED UNTREATED BASE COURSE UNLESS NEXT TO A PAVED AREA.
 2. IF CONCRETE IS TO BE POURED NEXT TO A CURB #4 REBAR SHALL BE DOWELED 3" INTO CURB AND 4" INTO SIDEWALK. REBAR SHALL BE INSTALLED A MINIMUM OF 2" FROM TOP OF THE SIDEWALK AND CURB 24" O.C.
 3. SIDEWALKS, MOW STRIPS, AND CURB WALLS SHALL HAVE CONSTRUCTION JOINTS EVERY 8' OR AT EACH FENCE POST.
 4. THERE SHALL BE A 2% GRADE FROM THE CURB TO SIDEWALK ACROSS PLANTERS.

DRAWN:	JAP
DESIGN:	TJB
CHECK:	CMT
DATE:	8/11/11

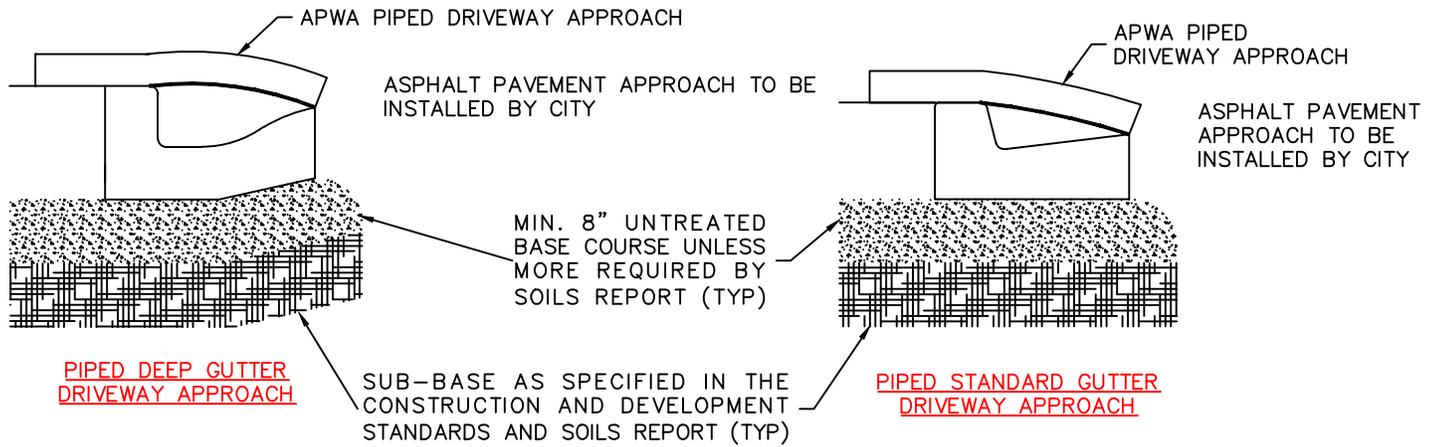
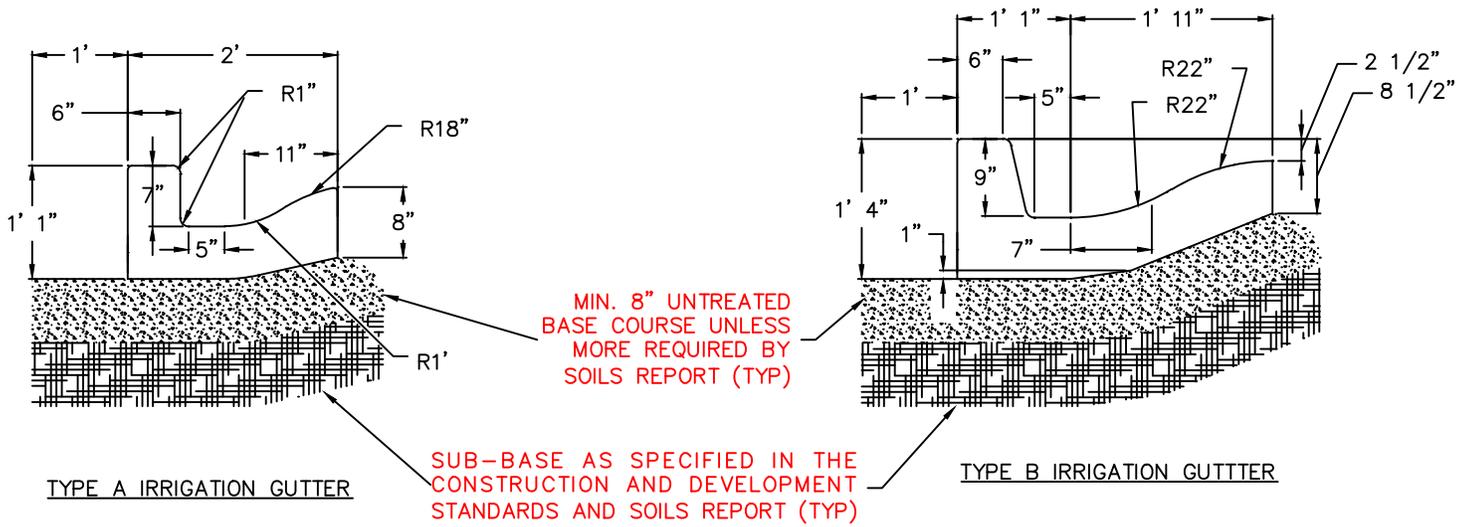


SPANISH FORK CITY
 40 SOUTH MAIN STREET
 SPANISH FORK, UT 84660
 (801) 798-5000

REVISION	DATE	BY

STANDARD DRAWING
 MOW STRIP AND CURB WALLS

SCALE	1:2
STANDARD	38 OF 65



NOTES:

1. SUB-BASE UNDER ALL CURBS AND GUTTERS SHALL MATCH WHAT IS IN THE ROAD WITH A MINIMUM OF 8" OF COMPACTED UNTREATED BASE COURSE.
2. IF CONCRETE IS TO BE POURED NEXT TO A CURB #4 REBAR SHALL BE DOWELED 3" INTO CURB AND 4" INTO SIDEWALK. REBAR SHALL BE INSTALLED A MINIMUM OF 2" FROM TOP OF THE SIDEWALK AND CURB 24" O.C.
3. TACK SHALL BE APPLIED TO LIP OF CURB AND EXTEND 1' ONTO GRAVEL ROAD BASE.
4. STEEL DRIVE APPROACH MAY ONLY BE USED WHEN AUTHORIZED BY THE CITY ENGINEER

DRAWN: JAP
 DESIGN: TJB
 CHECK: CMT
 DATE: 8/11/11

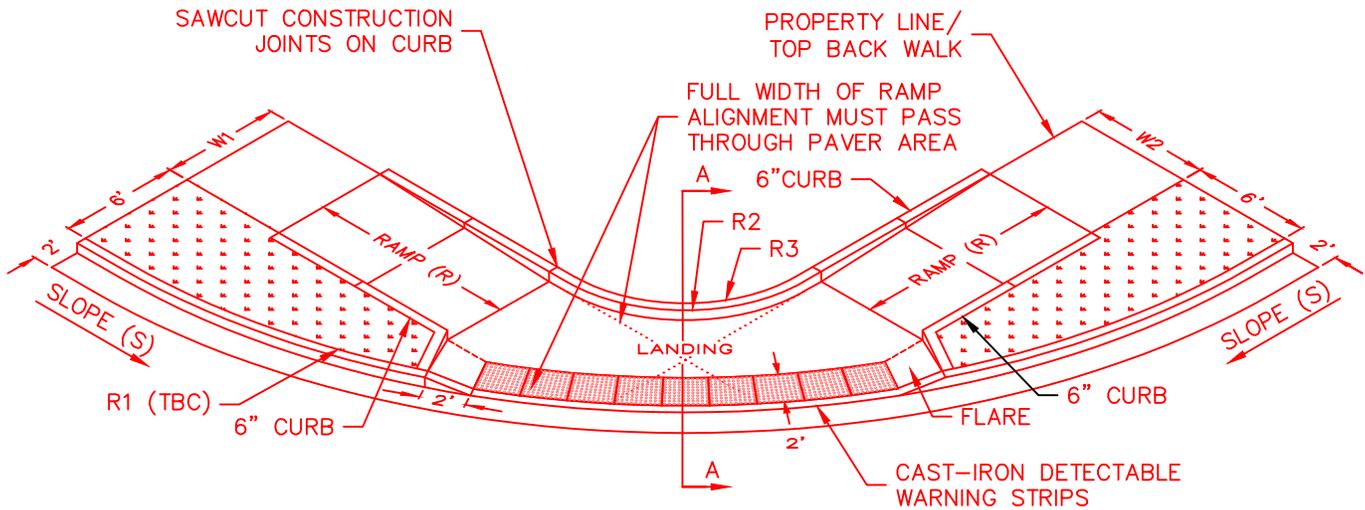


SPANISH FORK CITY
 40 SOUTH MAIN STREET
 SPANISH FORK, UT 84660
 (801) 798-5000

REVISION	DATE	BY

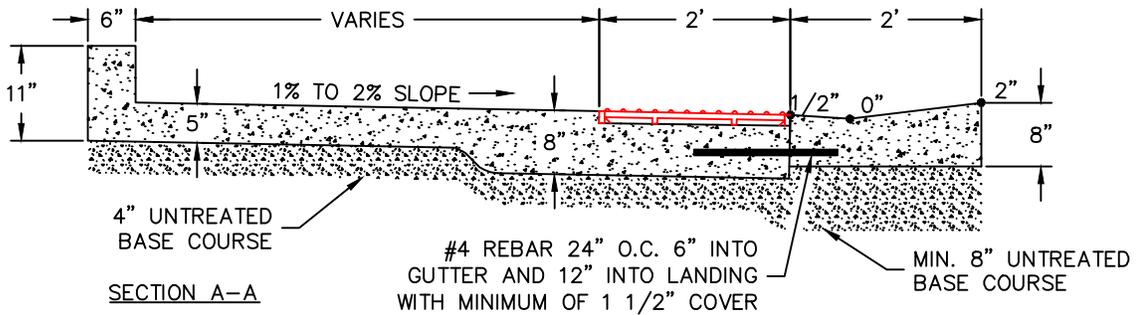
STANDARD DRAWING
 DEEP GUTTERS

SCALE
 1:2
 STANDARD
 39 OF 65



SLOPE OF CURB AND GUTTER TO LANDING (S)	RAMP LENGTH (R)	CURB WALL
-0.45% OR MORE	5'	NO
-0.45% TO -2.0%	10'	YES
-2% OR LESS	15'	YES

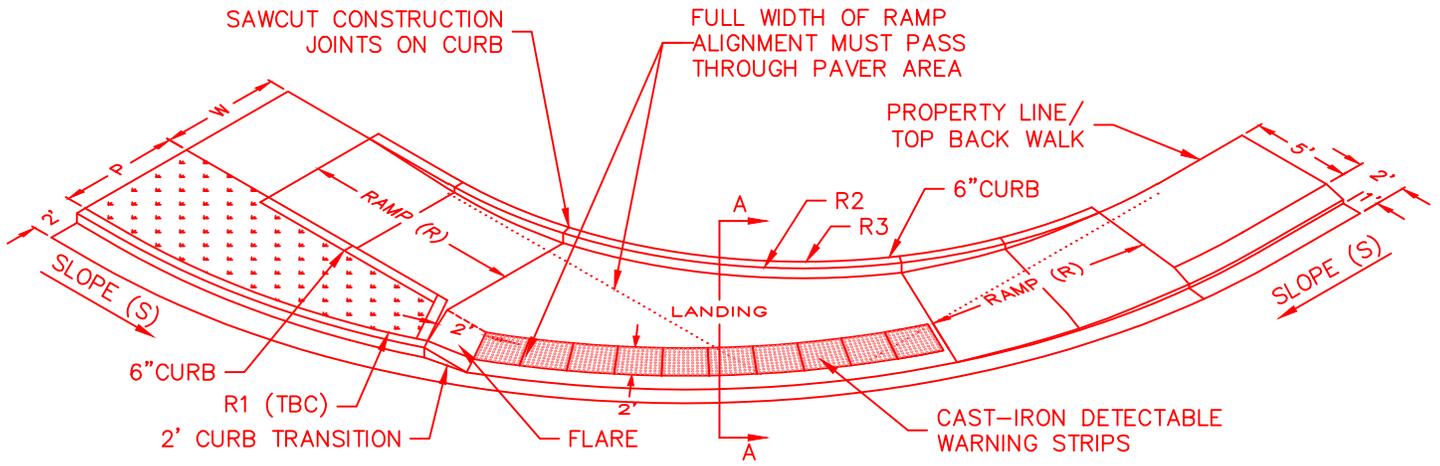
STREET TBC RADIUS (R1)				35' RADIUS		30' RADIUS		25' RADIUS	
SIDEWALK WIDTH (W1)	PLANTER WIDTH (P1)	SIDEWALK WIDTH (W2)	PLANTER WIDTH (P2)	PROPERTY LINE RADIUS (R2)	TOP BACK CURB RADIUS (R3)	PROPERTY LINE RADIUS (R2)	TOP BACK CURB RADIUS (R3)	PROPERTY LINE RADIUS (R2)	TOP BACK CURB RADIUS (R3)
5'	10'	5'	10'	2'6"	2'	2'6"	2'	2'6"	2'
5'	10'	5'	6'	5'6"	5'	2'6"	2'	2'6"	2'
5'	6'	5'	6'	12'6"	12'	8'6"	8'	2'6"	2'



NOTES:

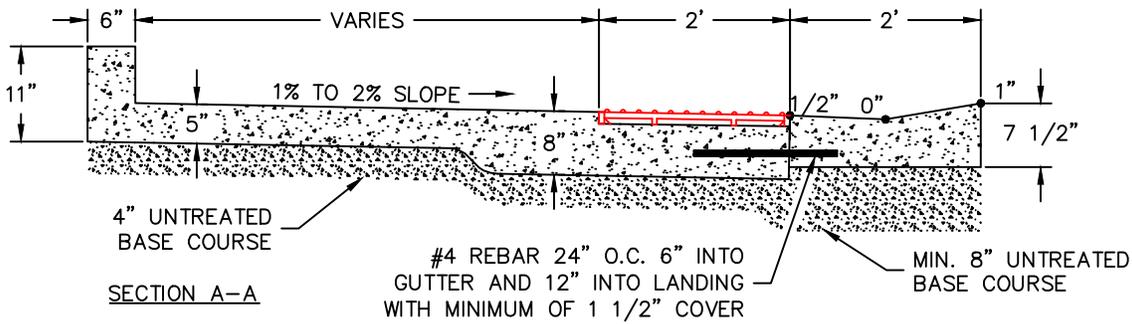
1. CONTRACTOR SHALL INSTALL PAVERS ACCORDING TO THE STANDARDS FOR CAST-IRON DETECTABLE WARNING STRIPS AND MATCH PATTERN IN THIS DRAWING. RADIAL PLATES SHALL BE A EAGLE JORDAN IRON WORKS OR APPROVED EQUIVALENT AND SHALL BE ACCORDING TO THE CORRECT TBC RADIUS.
2. THE MAXIMUM SLOPE OF A STREET WITHIN 25' OF THE BEGINNING OF RADIUS IS 5.5%.
3. THE SLOPE OF THE FLOWLINE OF GUTTER THROUGH A PEDESTRIAN RAMP SHALL BE 2.0% OR APPROVED BY CITY ENGINEER.
4. CURB AND GUTTER SLOPE (S) AND RAMP LENGTHS (R) SHALL BE CLEARLY LABELED AND DRAWN ON ALL PLANS, SEE TABLE FOR (R2) AND (R3).
5. RAMPS SHALL NOT EXCEED A 1:12 SLOPE.
6. STANDARD PEDESTRIAN RAMPS HAVE BEEN DESIGNED FOR NEW CONSTRUCTION. REPLACEMENT OF EXISTING PEDESTRIAN RAMPS SHALL BE DESIGNED AND STAMPED BY A PROFESSIONAL ENGINEER AND APPROVED BY THE CITY ENGINEER OR HIS/HER DESIGNEE.

DRAWN RWR DESIGN CMT CHECK RJH DATE 8/11/11	 <p>SPANISH FORK CITY 40 SOUTH MAIN STREET SPANISH FORK, UT 84660 (801) 798-5000</p>	REVISION	DATE	BY	STANDARD DRAWING PEDESTRIAN RAMP SIDEWALKS WITH PLANTERS	SCALE NONE
						STANDARD 40A OF 65



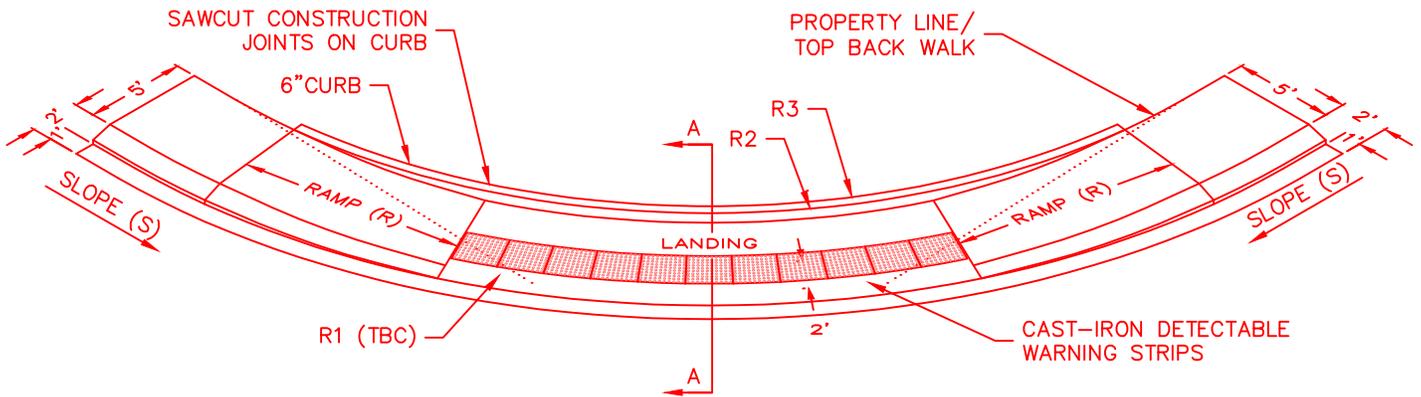
SLOPE OF CURB AND GUTTER TO LANDING (S)	RAMP LENGTH (R)	CURB WALL
-0.45% OR MORE	5'	NO
-0.45% TO -2.0%	10'	YES
-2% OR LESS	15'	YES

STREET TBC RADIUS (R1)		35' RADIUS		30' RADIUS		25' RADIUS	
SIDEWALK WIDTH (W)	PLANTER WIDTH (P)	PROPERTY LINE RADIUS (R2)	TOP BACK CURB RADIUS (R3)	PROPERTY LINE RADIUS (R2)	TOP BACK CURB RADIUS (R3)	PROPERTY LINE RADIUS (R2)	TOP BACK CURB RADIUS (R3)
10' TRAIL	10'	12'6"	12'	8'6"	8'	4'	4'
5'	10'	20'6"	20'	15'6"	15'	7'	10'
5'	6'	25'6"	25'	20'6"	20'	12'	15'



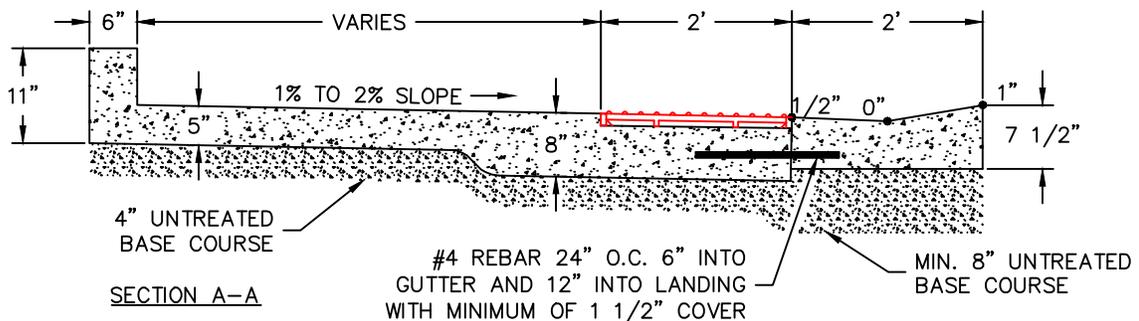
- NOTES:
- CONTRACTOR SHALL INSTALL PAVERS ACCORDING TO THE STANDARDS FOR CAST-IRON DETECTABLE WARNING STRIPS AND MATCH PATTERN IN THIS DRAWING. RADIAL PLATES SHALL BE A EAGLE JORDAN IRON WORKS OR APPROVED EQUIVALENT AND SHALL BE ACCORDING TO THE CORRECT TBC RADIUS.
 - THE MAXIMUM SLOPE OF A STREET WITHIN 25' OF THE BEGINNING OF RADIUS IS 5.5%. THE SLOPE OF THE FLOWLINE OF GUTTER THROUGH A PEDESTRIAN RAMP SHALL BE 2.0% OR APPROVED BY CITY ENGINEER.
 - CURB AND GUTTER SLOPE (S) AND RAMP LENGTHS (R) SHALL BE CLEARLY LABELED AND DRAWN ON ALL PLANS, SEE TABLE FOR (R2) AND (R3).
 - RAMPS SHALL NOT EXCEED A 1:12 SLOPE.
 - STANDARD PEDESTRIAN RAMPS HAVE BEEN DESIGNED FOR NEW CONSTRUCTION. REPLACEMENT OF EXISTING PEDESTRIAN RAMPS SHALL BE DESIGNED AND STAMPED BY A PROFESSIONAL ENGINEER AND APPROVED BY THE CITY ENGINEER OR HIS/HER DESIGNEE.

DRAWN RWR DESIGN CMT CHECK RJH DATE 8/11/11	 SPANISH FORK CITY 40 SOUTH MAIN STREET SPANISH FORK, UT 84660 (801) 798-5000	REVISION DATE BY	STANDARD DRAWING CORNER PEDESTRIAN RAMP FOR COMBINATION SIDEWALKS CONVERTING TO SIDEWALKS WITH PLANTERS	SCALE NONE STANDARD 40B OF 65
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SLOPE OF CURB AND GUTTER TO LANDING (S)	RAMP LENGTH (R)	CURB WALL
-0.45% OR MORE	5'	NO
-0.45% TO -2.0%	10'	YES
-2% OR LESS	15'	YES

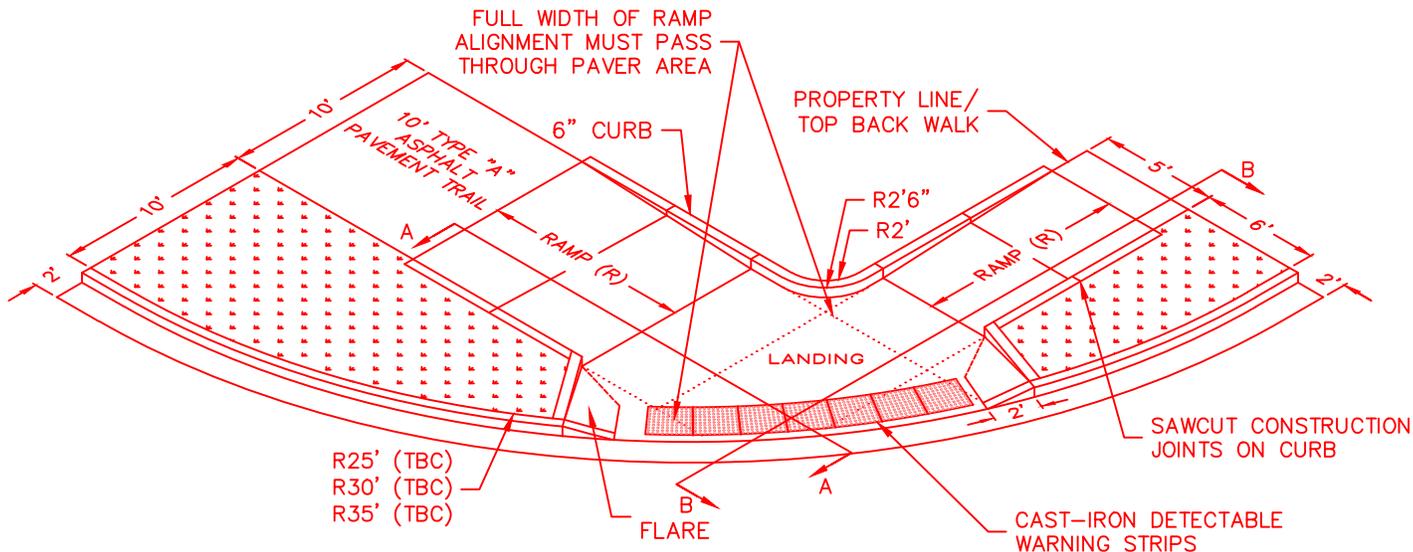
STREET TBC RADIUS (R1)	35'		30'		25'	
SIDEWALK WIDTH (W)	PROPERTY LINE RADIUS (R2)	TOP BACK CURB RADIUS (R3)	PROPERTY LINE RADIUS (R2)	TOP BACK CURB RADIUS (R3)	PROPERTY LINE RADIUS (R2)	TOP BACK CURB RADIUS (R3)
5'	30'6"	30'	25'6"	25'	20'5"	20'



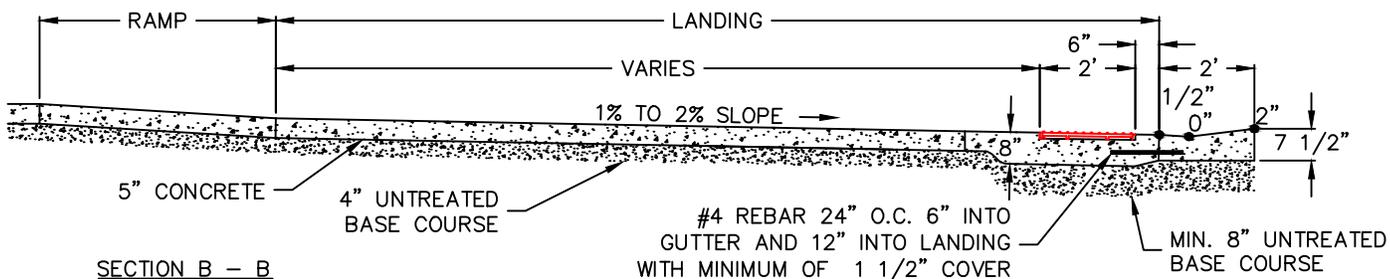
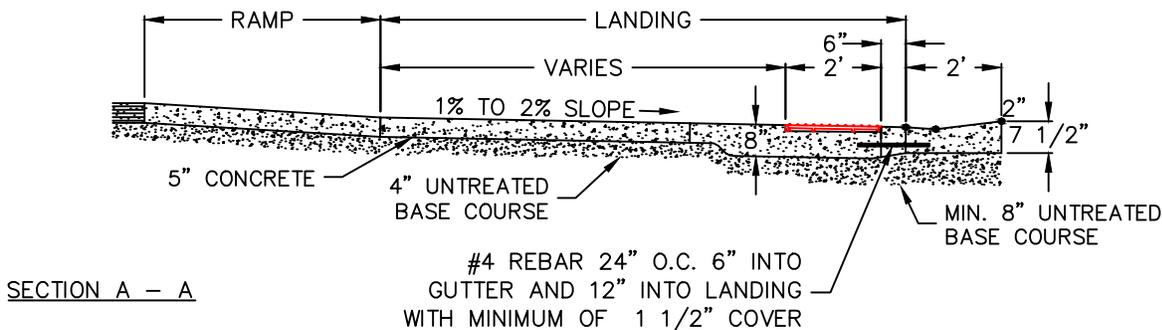
NOTES:

- CONTRACTOR SHALL INSTALL PAVERS ACCORDING TO THE STANDARDS FOR CAST-IRON DETECTABLE WARNING STRIPS AND MATCH PATTERN IN THIS DRAWING. RADIAL PLATES SHALL BE A EAGLE JORDAN IRON WORKS OR APPROVED EQUIVALENT AND SHALL BE ACCORDING TO THE CORRECT TBC RADIUS.
- THE MAXIMUM SLOPE OF A STREET WITHIN 25' OF THE BEGINNING OF RADIUS IS 5.5%. THE SLOPE OF THE FLOWLINE OF GUTTER THROUGH A PEDESTRIAN RAMP SHALL BE 2.0% OR APPROVED BY CITY ENGINEER.
- CURB AND GUTTER SLOPE (S) AND RAMP LENGTHS (R) SHALL BE CLEARLY LABELED AND DRAWN ON ALL PLANS, SEE TABLE FOR (R2) AND (R3).
- RAMPS SHALL NOT EXCEED A 1:12 SLOPE.
- STANDARD PEDESTRIAN RAMPS HAVE BEEN DESIGNED FOR NEW CONSTRUCTION. REPLACEMENT OF EXISTING PEDESTRIAN RAMPS SHALL BE DESIGNED AND STAMPED BY A PROFESSIONAL ENGINEER AND APPROVED BY THE CITY ENGINEER OR HIS/HER DESIGNEE.

DRAWN RWR		SPANISH FORK CITY	REVISION	DATE	BY	STANDARD DRAWING CORNER PEDESTRIAN RAMP COMBINATION SIDEWALKS	SCALE NONE
DESIGN CMT		40 SOUTH MAIN STREET					STANDARD 40C OF 65
CHECK RJH		SPANISH FORK, UT 84660					
DATE 8/11/11		(801) 798-5000					



SLOPE OF CURB AND GUTTER TO LANDING (S)	RAMP LENGTH (R)	CURB WALL
-0.45% OR MORE	5'	NO
-0.45% TO -2.0%	10'	YES
-2% OR LESS	15'	YES



NOTES:

1. CONTRACTOR SHALL INSTALL PAVERS ACCORDING TO THE STANDARDS FOR CAST-IRON DETECTABLE WARNING STRIPS AND MATCH PATTERN IN THIS DRAWING. RADIAL PLATES SHALL BE A EAGLE JORDAN IRON WORKS OR APPROVED EQUIVALENT AND SHALL BE ACCORDING TO THE CORRECT TBC RADIUS.
2. THE MAXIMUM SLOPE OF A STREET WITHIN 25' OF THE BEGINNING OF RADIUS IS 5.5%. THE SLOPE OF THE FLOWLINE OF GUTTER THROUGH A PEDESTRIAN RAMP SHALL BE 2.0% OR APPROVED BY CITY ENGINEER.
3. CURB AND GUTTER SLOPE (S) AND RAMP LENGTHS (R) SHALL BE CLEARLY LABELED AND DRAWN ON ALL PLANS.
4. RAMPS SHALL NOT EXCEED A 1:12 SLOPE.
5. STANDARD PEDESTRIAN RAMPS HAVE BEEN DESIGNED FOR NEW CONSTRUCTION. REPLACEMENT OF EXISTING PEDESTRIAN RAMPS SHALL BE DESIGNED AND STAMPED BY A PROFESSIONAL ENGINEER AND APPROVED BY THE CITY ENGINEER OR HIS/HER DESIGNEE.
6. POUR CONCRETE PEDESTRIAN RAMP BEFORE PAVING TRAIL.

DRAWN	RWR
DESIGN	CMT
CHECK	RJH
DATE	8/11/11

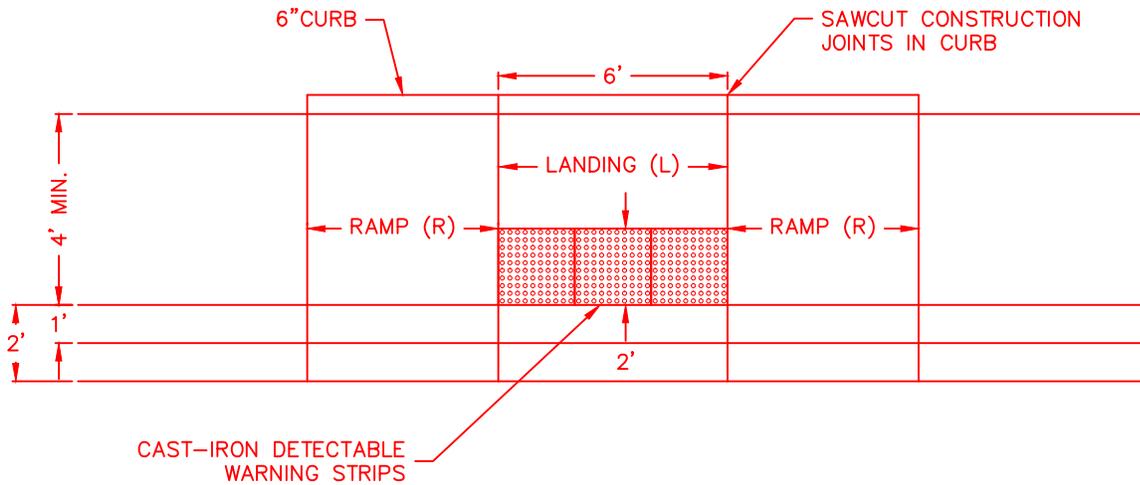
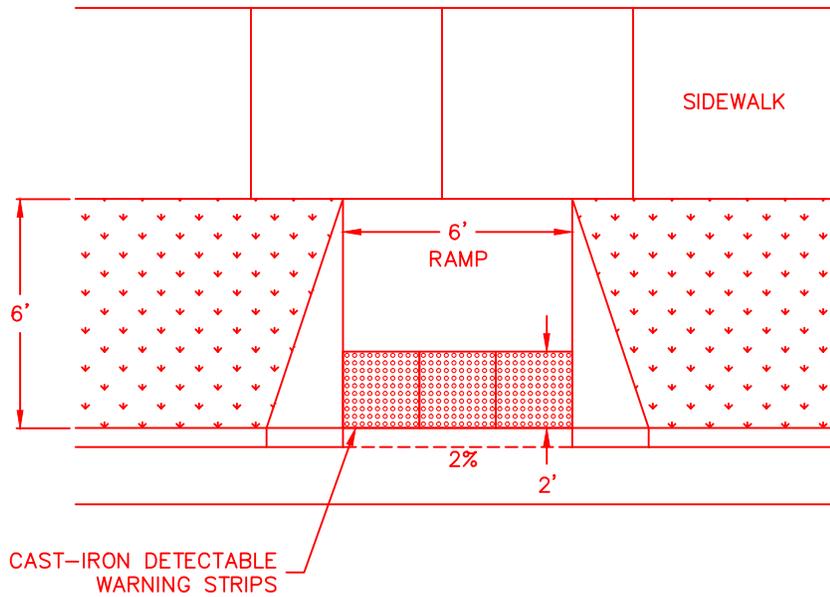


SPANISH FORK CITY
 40 SOUTH MAIN STREET
 SPANISH FORK, UT 84660
 (801) 798-5000

REVISION	DATE	BY

STANDARD DRAWING
 CORNER PEDESTRIAN RAMP FOR
 SIDEWALKS CONNECTING TO TRAILS

SCALE	NONE
STANDARD	40D OF 65



NOTES:

1. RAMPS SHALL HAVE A 1:12 MAXIMUM SLOPE, WITH A MAXIMUM 2% CROSS SLOPE. ALL OTHER SIDEWALK AND LANDING SHALL HAVE A 1:48 MAXIMUM SLOPE.
2. CONTRACTOR SHALL INSTALL PAVERS ACCORDING TO THE STANDARDS FOR CAST-IRON DETECTABLE WARNING STRIPS AND MATCH PATTERN IN THIS DRAWING. RADIAL PLATES SHALL BE A EAGLE JORDAN IRON WORKS OR APPROVED EQUIVALENT AND SHALL BE ACCORDING TO THE CORRECT TBC RADIUS.
3. CONCRETE SHALL BE 7 INCHES THICK THROUGHOUT RAMP.
4. IF CONCRETE IS TO BE POURED NEXT TO A CURB, #4 REBAR SHALL BE DOWELED 6" INTO CURB AND 12" INTO SIDEWALK. REBAR SHALL BE INSTALLED A MINIMUM OF 1 1/2" FROM TOP OF THE SIDEWALK AND CURB 24" O.C.
5. MODIFICATIONS TO THIS STANDARD MUST BE APPROVED BY THE CITY.
6. DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 IN, A HEIGHT OF NOMINAL 0.2 IN AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35 IN.

DRAWN	RWR
DESIGN	CMT
CHECK	RJH
DATE	8/11/11

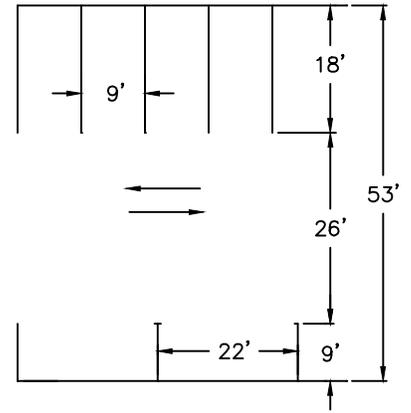
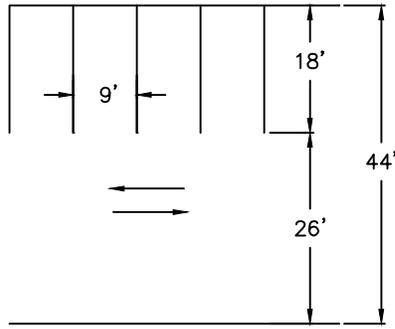
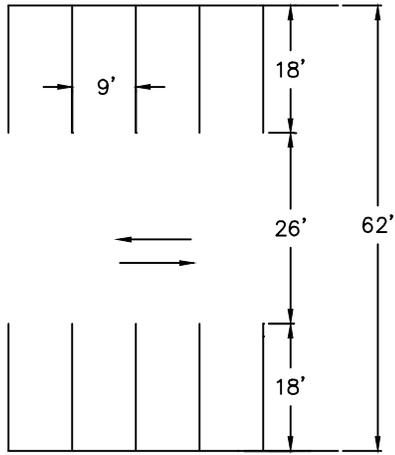


SPANISH FORK CITY
 40 SOUTH MAIN STREET
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 (801) 798-5000

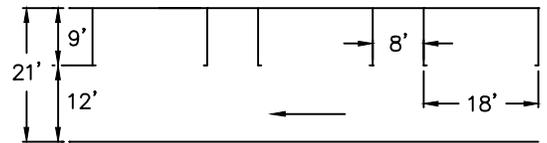
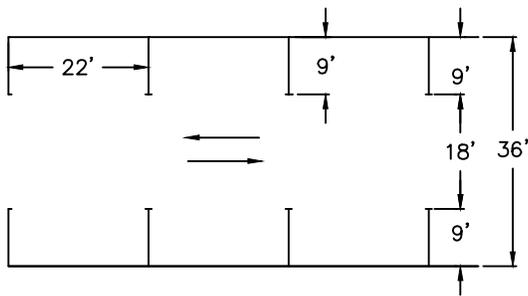
REVISION	DATE	BY

STANDARD DRAWING
 MID BLOCK PEDESTRIAN RAMP
 DESIGN GUIDELINES

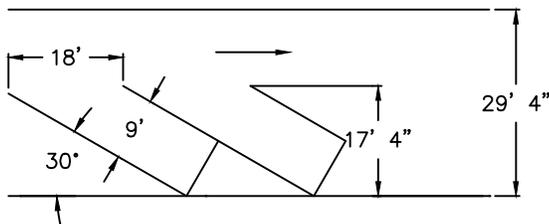
SCALE NONE
STANDARD 41 OF 65



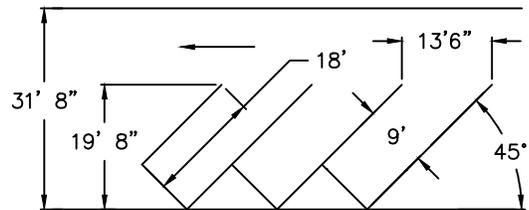
RIGHT ANGLE PARKING



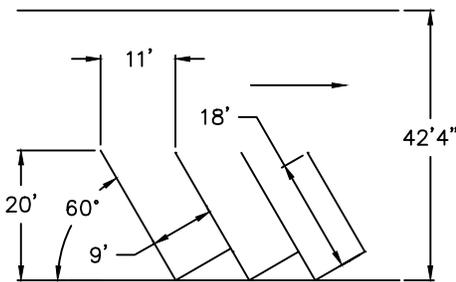
PARALLEL PARKING



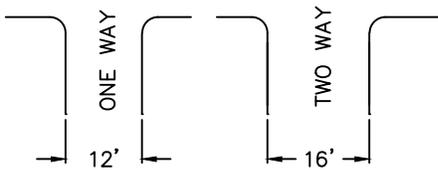
30 DEGREE ANGLE PARKING
MUST HAVE 20' TRAVEL LANE FOR 2 WAY TRAFFIC



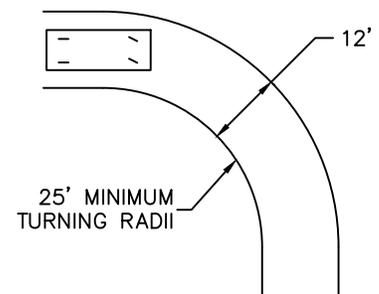
45 DEGREE ANGLE PARKING
MUST HAVE 22' TRAVEL LANE FOR 2 WAY TRAFFIC



60 DEGREE ANGLE PARKING
MUST HAVE 24' TRAVEL LANE FOR
2 WAY TRAFFIC



DRIVEWAY WIDTHS



MINIMUM TURNING RADIUS

DRAWN: JAP
DESIGN: TJB
CHECK: CMT
DATE: 8/11/11



SPANISH FORK CITY
40 SOUTH MAIN STREET
SPANISH FORK, UT 84660
(801) 798-5000

REVISION	DATE	BY

STANDARD DRAWING
PARKING LOTS

SCALE
1" = 30'
STANDARD
42 OF 65

SPANISH FORK POWER CONSTRUCTION STANDARDS & DRAWINGS

GENERAL INFORMATION

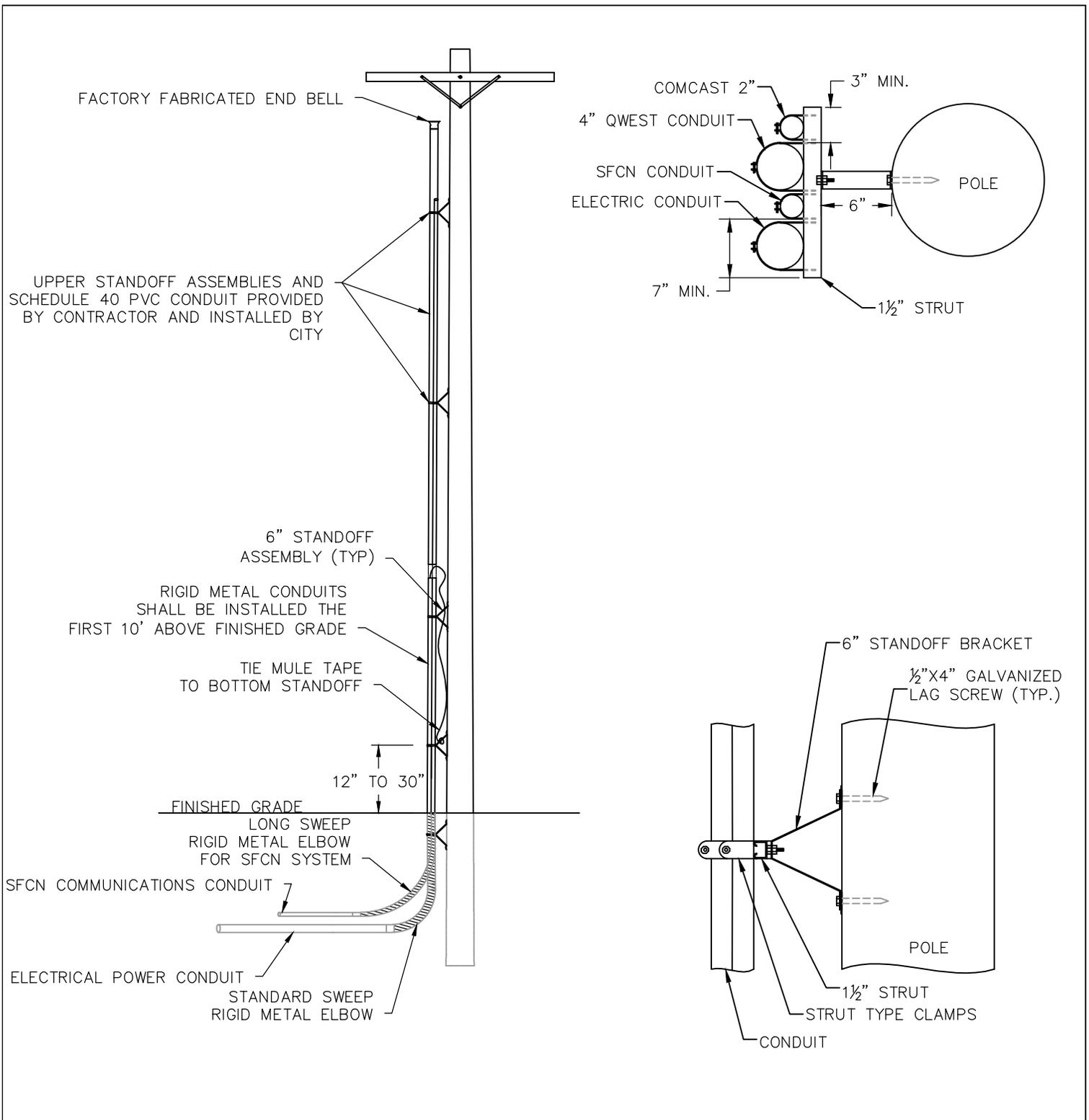
PURPOSE

THE PURPOSE OF THE ELECTRICAL CONSTRUCTION DRAWINGS IS TO AID CUSTOMERS, CONTRACTORS, DEVELOPERS, ENGINEERS, IN CONSTRUCTION AND INSTALLATION OF ELECTRICAL SYSTEMS AND SERVICES TO NEW AND REMODELED STRUCTURES, AND NEW RESIDENTIAL, COMMERCIAL AND INDUSTRIAL DEVELOPMENTS. IT IS THE INTENT AND DESIRE, WITH THE AID OF THE CONSTRUCTION STANDARDS AND DRAWINGS, OF SPANISH FORK POWER TO PROVIDE SAFE, EFFICIENT, AND RELIABLE ELECTRICAL SERVICE TO ALL CUSTOMERS.

GENERAL GUIDELINES AND RULES

1. STANDARDS DRAWINGS 44 THROUGH 62 FOR ELECTRICAL & COMMUNICATIONS INSTALLATIONS ARE A SUPPLEMENT TO THE POLICY 39 CONSTRUCTION STANDARDS TEXT ONLY. THE DRAWINGS ARE NOT INTENDED TO BE VIEWED OR USED SOLELY WITHOUT FIRST READING AND UNDERSTANDING THE POLICY 39 CONSTRUCTION STANDARDS IN THE FRONT OF THIS BOOK.
2. REFER TO THE POLICY 39 CONSTRUCTION STANDARDS, CHAPTER 39.70 FOR ELECTRICAL INSTALLATIONS, AND CHAPTER 39.75 FOR COMMUNICATIONS INSTALLATIONS, FOR ALL APPLICATIONS.
3. CURB & GUTTER SHALL BE INSTALLED ON ANY PROJECT BEFORE THE MAIN ELECTRICAL TRENCH IS EXCAVATED. THE CURB SHOULD HAVE PROPERTY CORNERS MARKED AND PINNED IN THE CURB BY APPROVED METHODS. THE CURB WILL GIVE REFERENCE TO THE ELECTRICAL CONDUIT DEPTHS, ELECTRICAL BOX PLACEMENT AND OTHER LOCATIONS IMPORTANT FOR ELECTRICAL INSTALLATION.
4. IF THE ELECTRICAL INSTALLATION, APPLICATIONS, OR OTHER MATTERS ARE NOT COVERED IN THIS BOOK, THEN IN GENERAL, THE INSTALLATION, APPLICATION, OR MATTER IS NOT APPROVED.
5. ALL ELECTRICAL CONSTRUCTION, AND INSTALLATION SHALL CONFORM TO APPLICABLE PROVISIONS OF THE NATIONAL ELECTRICAL CODE (NEC), THE NATIONAL ELECTRICAL SAFETY CODE (NESC), OSHA, STATE, COUNTY, AND CITY ORDINANCES, STANDARDS, AND CODES.
6. ANY AND ALL WORK IN THE VICINITY OF OVERHEAD POWERLINES SHALL NOT BE ALLOWED UNLESS THE RESPONSIBLE PARTY FIRST NOTIFIES THE POWER DEPARTMENT OF THE INTENDED WORK OR ACTIVITY. NO PERSON OR THING SHALL BE BROUGHT WITHIN 10 FEET OF ANY HIGH VOLTAGE OVERHEAD POWER LINES, UNLESS THE PROPER STEPS ARE TAKEN TO INSURE THE SAFETY OF THE PUBLIC, AND POWER DEPARTMENT PERSONELL. THE POWER DEPARTMENT RECOMMENDS A MINIMUM OF 3 BUSINESS DAYS NOTICE BE GIVEN BEFORE ANY WORK NEAR ITS OVERHEAD POWER LINES IS SCHEDULED TO BEGIN.
7. THE NATIONAL ELECTRICAL SAFETY CODE AND POWER DEPARTMENT CODE REQUIRES THAT HOMES, BUILDINGS, SIGNS, BRIDGES, ANTENNAS, ETC, HAVE SUFFICIENT HORIZONTAL AND VERTICAL CLEARANCES TO OVERHEAD POWER LINES. CONSULT WITH THE POWER DEPARTMENT FOR APPLICABLE DISTANCES AND CLEARANCES.
8. CALL BLUESTAKES BEFORE YOU DIG! UTAH LAW SECTION 54-8A-1 THROUGH 54-8A-11 REQUIRES THE BLUE STAKES ONE CALL LOCATION CENTER BE NOTIFIED AT LEAST TWO BUSINESS DAYS PRIOR TO EXCAVATION. THE EXCAVATION SHALL NOT BE STARTED UNTIL LOCATIONS HAVE BEEN MADE.
9. IN GENERAL, JOINT TRENCHING OF POWER AND COMMUNICATIONS IS ALLOWED AS LONG AS THE INSTALLATION CONFORMS TO THE CONSTRUCTION STANDARDS.
10. ALL ELECTRICAL CONDUITS SHALL BE INSTALLED A MINIMUM OF 4 FEET TO TOP OF CONDUIT FROM FINISHED GRADE. ADDITIONAL DEPTHS MAY BE REQUIRED IF HIGH VOLTAGE PRIMARY (12.47kV) CABLES ARE INSTALLED IN A JOINT TRENCH WITH LOW VOLTAGE (600V OR LESS) CABLES, AND COMMUNICATIONS CABLES. IN GENERAL, HIGH VOLTAGE PRIMARY (12.47kV) CONDUITS SHALL BE INSTALLED 1 FOOT IN DEPTH FOR EVERY 1 INCH IN CONDUIT SIZE, (example 5 inch conduit shall be 5 feet in depth), BUT IN NO CASE SHALL PRIMARY CONDUITS BE INSTALLED LESS THAN THE MINIMUM OF 4 FEET IN DEPTH, UNLESS APPROVED BY THE POWER DEPARTMENT.
11. THE ELECTRICAL DISTRIBUTION SYSTEM FOR ALL NEW CONSTRUCTION OF RESIDENTIAL, COMMERCIAL, INDUSTRIAL, DEVELOPMENTS SHALL BE INSTALLED UNDERGROUND UNLESS OTHERWISE APPROVED BY THE POWER DEPARTMENT. REMODELING, CHANGES IN USE, ADDITIONS, ALTERATIONS, AND OTHER CHANGES THAT EFFECT THE ELECTRICAL SYSTEM, MAY REQUIRE THAT THE ELECTRICAL SYSTEM BE REROUTED, OR UPGRADED UNDERGROUND, AND OR BE BROUGHT UP TO CURRENT NEC, NESC, AND CITY STANDARDS. ADDITIONAL REQUIREMENTS MAY APPLY
12. THE DEVELOPER IS TO PROVIDE THE TRENCH FOR ALL REQUIRED CONDUIT SYSTEMS, AND FOLLOWING THE INSTALLATION OF THE CONDUITS BY THE DEVELOPER, PROVIDE SAND AND BACKFILL TO MEET THE CONSTRUCTION STANDARDS. ALL TRENCHES SHALL BE COMPACTED TO 95% AND PASS THE COMPACTION TEST BEFORE THE TRENCH WILL BE ACCEPTED. ALL CONDUITS SHALL BE INSPECTED BEFORE ANY SAND OR BACKFILL IS APPLIED. TO INSURE FINAL GRADE HAS BEEN ESTABLISHED, THE CURB & GUTTER SHALL BE INSTALLED BEFORE THE ELECTRICAL TRENCH IS STARTED UNLESS OTHERWISE APPROVED BY THE POWER DEPARTMENT.
13. PRIOR TO BACKFILLING ANY CONDUITS, THE DEVELOPER SHALL SCHEDULE AND REQUEST AN INSPECTION FROM THE POWER DEPARTMENT. FOLLOWING THE INSPECTION THE POWER DEPARTMENT WILL ISSUE A "PASSED" OR "FAILED" SLIP TO PROCEED BACKFILLING OR NOT TO PROCEED.
14. STATE SPECIFIED ROAD BASE SHALL BE USED UNDER ALL ELECTRICAL BOXES, ENCLOSURES, PADS, OR VAULTS. THE ROAD BASE SHALL BE COMPACTED TO 95% MINIMUM AND PASS A COMPACTION TEST BEFORE ANY BOXES, ENCLOSURES, PADS OR VAULTS ARE SET. THE ROAD BASE SHALL BE A MINIMUM OF 1 FOOT IN DEPTH AND EXTEND A MINIMUM OF 1 FOOT PAST ALL SIDES OF THE BOXES, ENCLOSURES, PADS OR VAULTS. ADDITIONAL REQUIREMENTS MAY APPLY.
15. IN GENERAL, ALL ELECTRICAL BOXES SHALL BE PLACED A MINIMUM OF 18 INCHES FROM A PROPERTY LINE AND SET BACK 6 INCHES TO 1 FOOT BEHIND SIDEWALKS.

DRAWN	JRB	 <p>SPANISH FORK CITY 40 SOUTH MAIN STREET SPANISH FORK, UT 84660 (801) 798-5000</p>	REVISION	DATE	BY	<p align="center">STANDARD DRAWING ELECTRIC AND COMMUNICATIONS FRONT PAGE-INFORMATION</p>	SCALE NONE
DESIGN	JRB						<p align="center">STANDARD 43 OF 65</p>
CHECK	RJH						
DATE	10/01/07						



NOTES:

1. CONTRACTOR SHALL PROVIDE SCHEDULE 40 PVC CONDUIT AND MATERIALS FOR STANDOFF ASSEMBLIES ABOVE THE RIGID METAL SECTION OF THE RISER TO THE CITY FOR INSTALLATION.
2. FOR RISERS WHERE THE CONTRACTOR IS REQUIRED TO PULL LOW VOLTAGE CABLE (120/240 VOLT, 3 OR 4 WIRE) ENOUGH WIRE SHALL EXTEND FROM THE CONDUIT FOR THE CITY TO ATTACH IT TO THE 2' DRIP LOOP AT TOP OF POLE.
3. FIBERGLASS CONDUITS AND FIBERGLASS "ELBOWS" ARE NOT PERMITTED ON ANY RISER POLE APPLICATION UNLESS OTHERWISE APPROVED.
4. CROSS-HATCHED CONDUITS SHALL BE ANTI-CORROSION TAPED, RIGID METAL CONDUITS.

DRAWN	JRB
DESIGN	JRB
CHECK	RJH
DATE	05/05/04

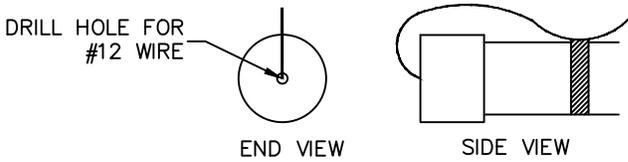
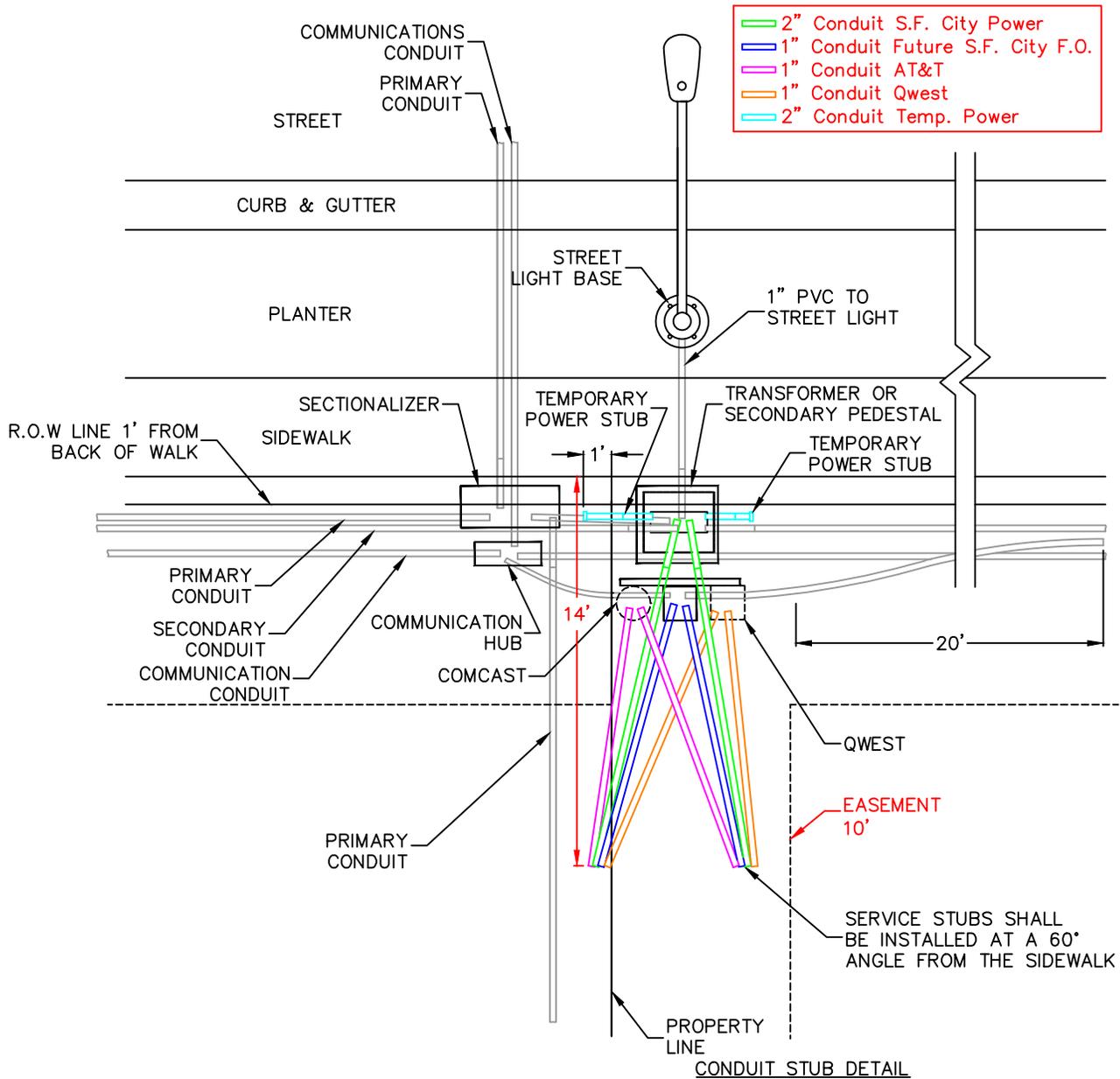


SPANISH FORK CITY
 40 SOUTH MAIN STREET
 SPANISH FORK, UT 84660
 (801) 798-5000

REVISION	DATE	BY

STANDARD DRAWING
 TYPICAL RISER POLE

SCALE
 NONE
 STANDARD
 44 OF 65



NOTES:

1. PERMANENTLY CAP ALL ENDS OF STUBS AND MARK WITH A RADAR ENGINEERS MODEL 600 RED BURIED PIPE MARKER OR APPROVED EQUIVALENT.
2. SERVICE STUBS SHALL BE INSTALLED WITH #12 SOLID COPPER THIN TRACER WIRE TAPED TO OUT SIDE ON BOTH ENDS. (DRILL APPROPRIATELY SIZED HOLE THROUGH END OF CAP FOR #12 WIRE)
3. COMCAST AND QWEST COMMUNICATION PEDESTALS SHALL BE INSTALLED BY COMCAST AND QWEST.
4. ALL CONDUIT STUBS SHALL BE INSTALLED BY DEVELOPER.

DRAWN	BKD
DESIGN	CMT
CHECK	RJH
DATE	8/11/11

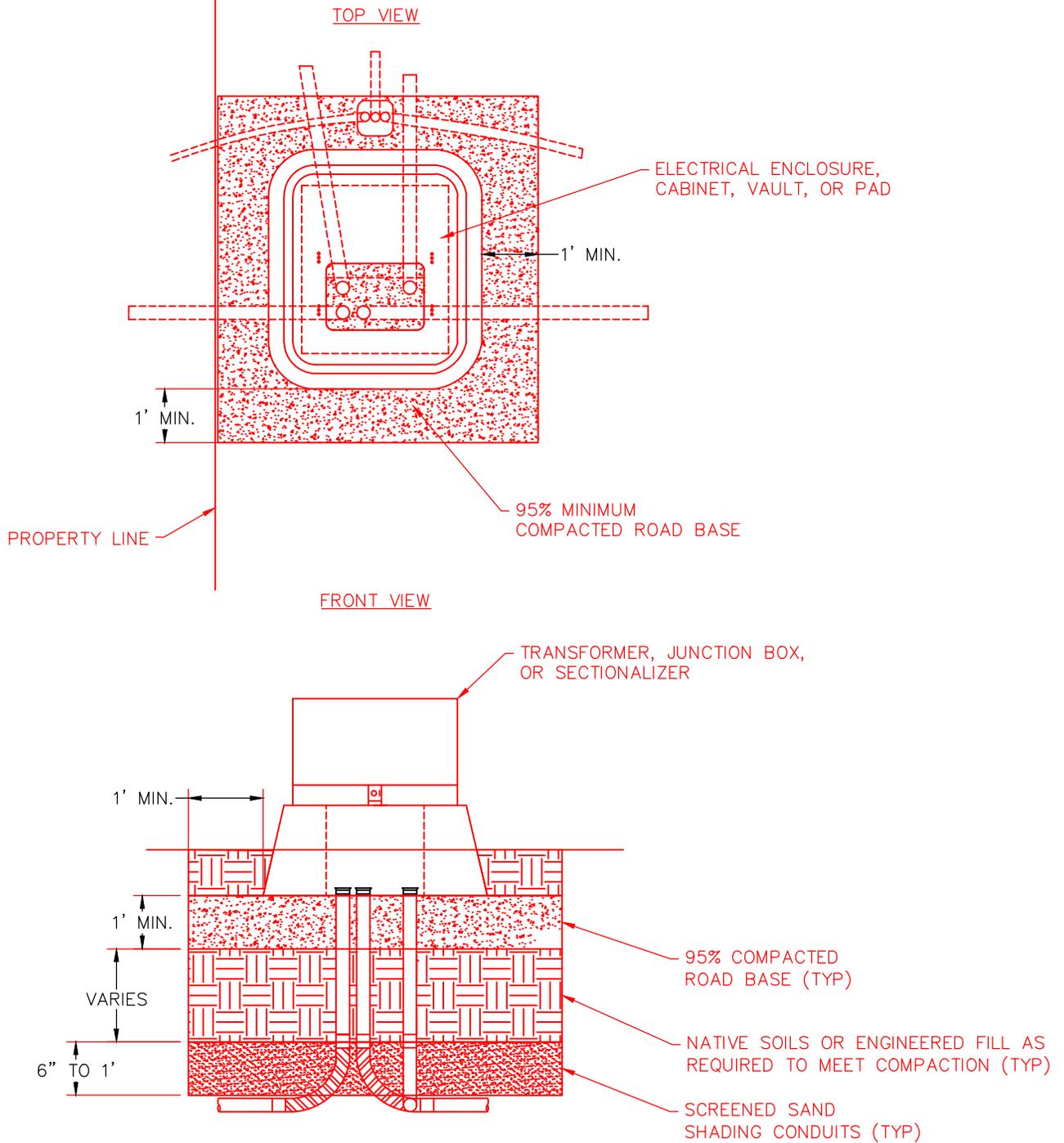


SPANISH FORK CITY
 40 SOUTH MAIN STREET
 SPANISH FORK, UT 84660
 (801) 798-5000

REVISION	DATE	BY

STANDARD DRAWING
 CONDUIT ROUTING

SCALE
 NONE
 STANDARD
 45 OF 65



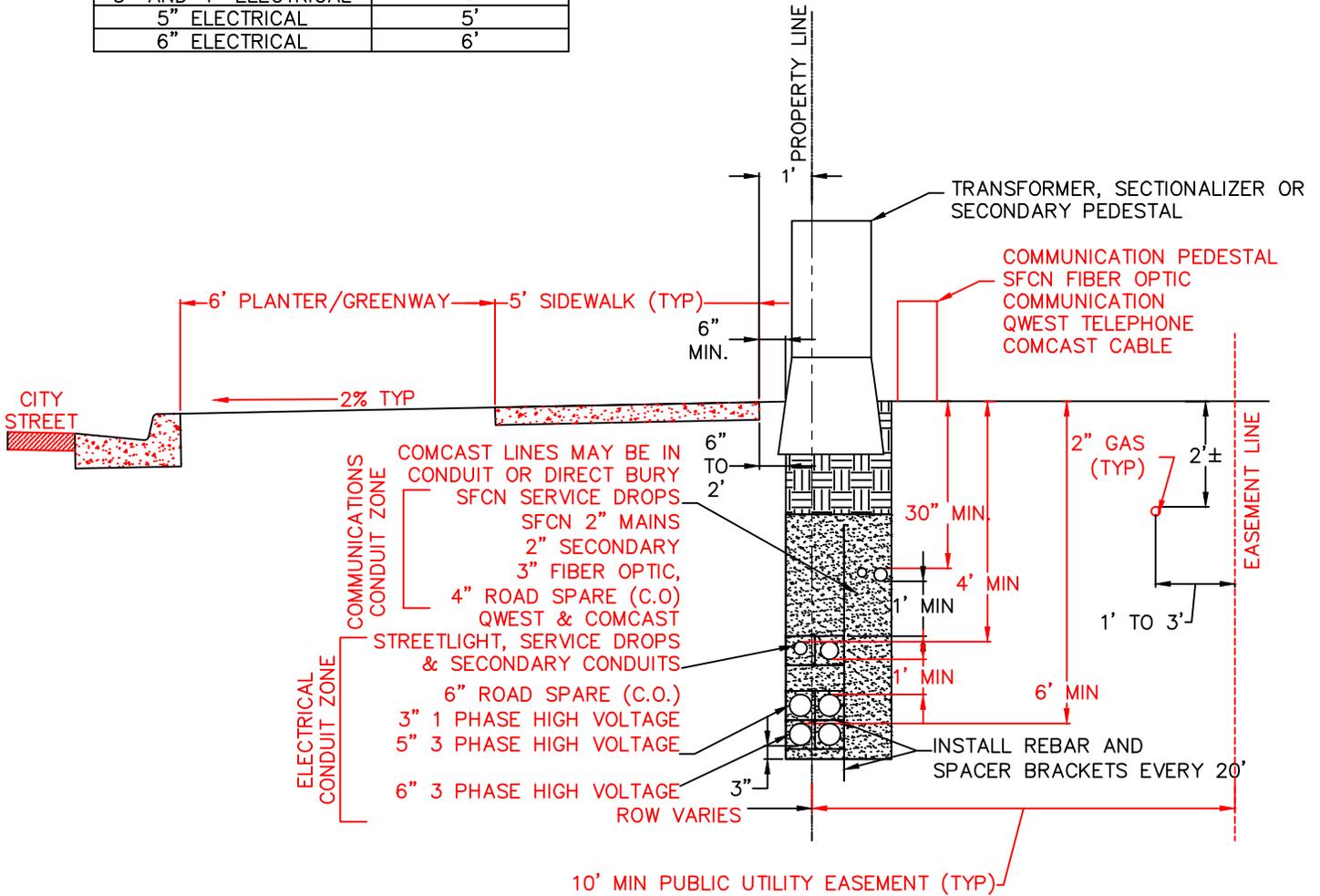
NOTES:

1. ALL ELECTRICAL BOXES INCLUDING, BUT NOT LIMITED TO, SECTIONALIZERS, SECONDARY JUNCTION BOXES, TRANSFORMERS AND TRANSFORMER CONCRETE PADS SHALL HAVE UNTREATED BASE COURSE COMPACTED TO A MINIMUM OF 95% UNDER ALL BOXES. FILL SHALL BE A MINIMUM OF 1' IN DEPTH, AND SHALL EXTEND A MINIMUM OF 1' PAST ALL SIDES AND BACK AND 1' IN FRONT (6" IF A SIDEWALK IS PRESENT) OF ALL BOXES OR PADS.
2. ALL COMPACTION TESTS SHALL BE TAKEN BEFORE ELECTRICAL BOXES ARE SET INTO PLACE.
3. ALL SAND, ROADBASE AND ENGINEERED FILL SHALL MEET SPANISH FORK CITY STANDARDS.
4. REFER TO "EARTHWORK AND TRENCHES" SECTION IN THE CONSTRUCTION STANDARDS FOR ADDITIONAL REQUIREMENTS FOR BACKFILL, TRENCHING AND COMPACTION.
5. AREA AROUND ELECTRICAL BOXES SHALL BE BACKFILLED & LEVELED A MINIMUM OF 12' IN ALL DIRECTIONS TO PROVIDE A SAFE WORKING AREA FOR THE POWER DEPARTMENT.

DRAWN	JRB	 <p>SPANISH FORK CITY 40 SOUTH MAIN STREET SPANISH FORK, UT 84660 (801) 798-5000</p>	REVISION	DATE	BY	<p>STANDARD DRAWING ELECTRICAL BOX BACKFILL & COMPACTION</p>	SCALE
DESIGN	JRB			1/18/07	JRB		NONE
CHECK	XXX						
DATE	12/08/08						
							STANDARD
							46 OF 65

TYPE OF CONDUIT	(MIN.) DEPTH TO TOP OF CONDUIT
COMMUNICATION	30" MIN.
STREET LIGHT	4'
2 1/2" ELECTRICAL SERVICE	4'
3" AND 4" ELECTRICAL	4'
5" ELECTRICAL	5'
6" ELECTRICAL	6'

TYPICAL JOINT TRENCH OF HIGH VOLTAGE, LOW VOLTAGE, & COMMUNICATIONS CONDUITS

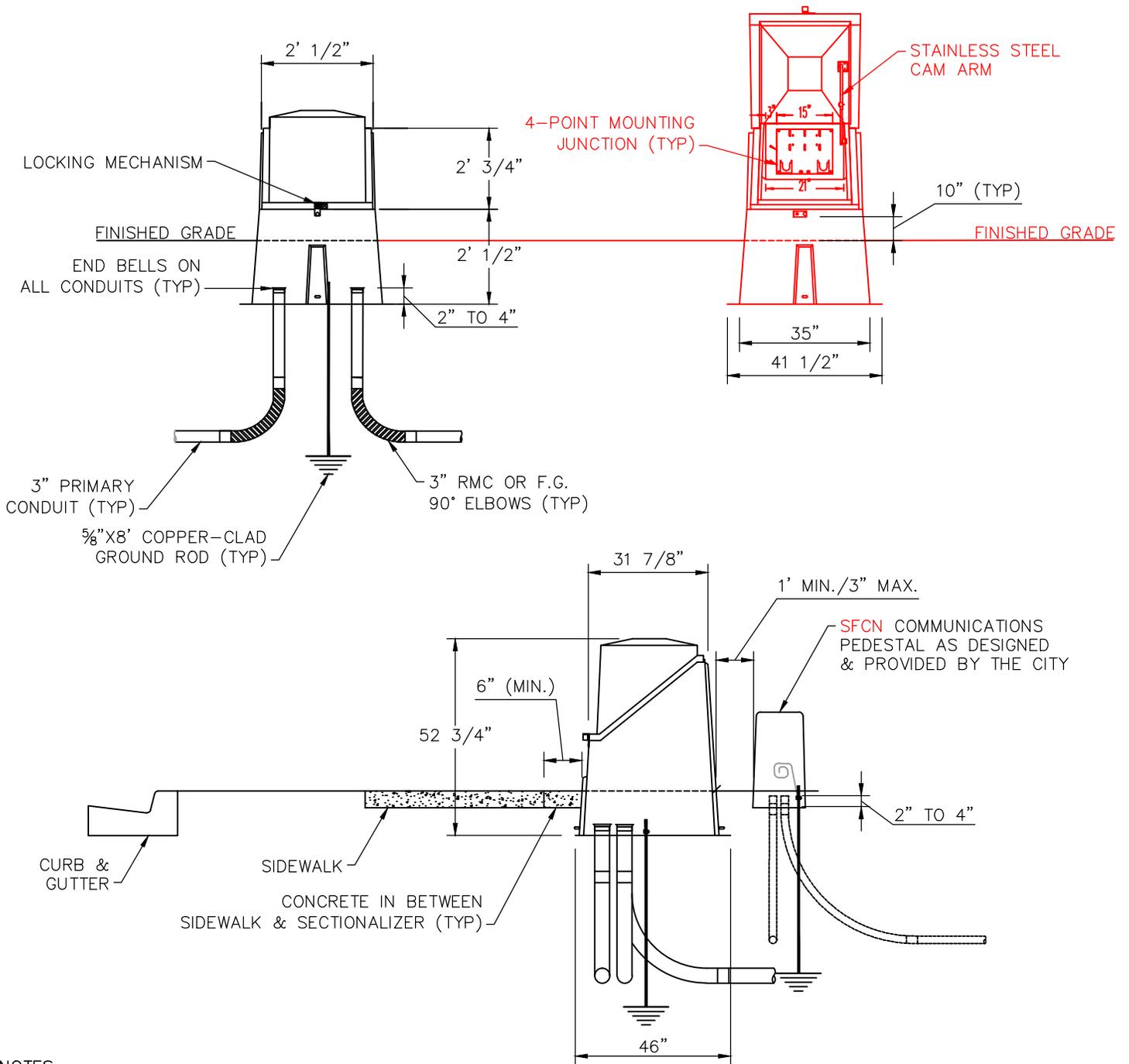


ALL POWER CONDUIT SHALL BE BURIED A MINIMUM OF 4' IN DEPTH TO TOP OF CONDUIT. IF HIGH VOLTAGE (12KV) CONDUITS & LOW VOLTAGE (600 VOLT) POWER CONDUITS ARE INSTALLED IN THE SAME TRENCH, THE HIGH VOLTAGE POWER SHALL ALWAYS BE INSTALLED BELOW LOW VOLTAGE POWER CONDUITS. IF THERE ARE MULTIPLE HIGH VOLTAGE CONDUITS (3" 1PHASE, 6" 3PHASE) IN THE SAME TRENCH, ALL HIGH VOLTAGE CONDUITS MAY BE INSTALLED AT THE DEPTH OF THE LARGEST CONDUIT (6")

NOTES:

1. COMMUNICATIONS CONDUIT ROUTING SHALL BE COORDINATED THROUGH THE SPANISH FORK ELECTRICAL DIVISION.
2. COMMUNICATIONS CONDUITS SHALL BE BEHIND OR TO THE SIDES OF TRANSFORMERS, SECTIONALIZERS OR JUNCTION BOXES.
3. HIGH VOLTAGE PRIMARY CONDUITS SHALL ALWAYS BE BELOW SECONDARY CONDUITS.
4. REBAR SHALL BE CAPPED UNTIL BACKFILLED.
5. BACKFILL SHALL MEET THE REQUIREMENTS OF EARTHWORK AND TRENCHES AND OTHER STANDARDS IN THE CONSTRUCTION AND DEVELOPMENT STANDARDS.
6. ALL CONDUITS SHALL BE INSPECTED AT EACH "LIFT", AT THE COMPACTION LEVEL, AND FOR A FINAL INSPECTION.
7. A CAUTION TAPE SHALL BE PLACED DIRECTLY ON CONDUIT, AND A CAUTION TAPE SHALL BE PLACED 1' BELOW GRADE FOR BOTH POWER & CITY COMMUNICATIONS.

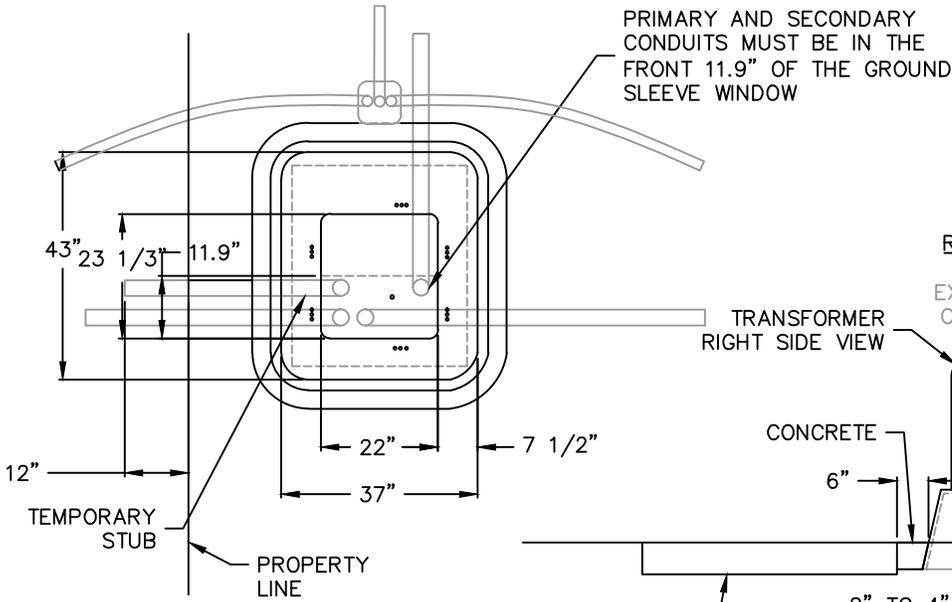
DRAWN JRB	 <p>SPANISH FORK CITY 40 SOUTH MAIN STREET SPANISH FORK, UT 84660 (801) 798-5000</p>	REVISION	DATE	BY	<p>STANDARD DRAWING ELECTRIC AND COMMUNICATION CONDUIT JOINT TRENCH DETAIL</p>	SCALE NONE
DESIGN JRB						STANDARD
CHECK KP						
DATE 03/05/08						



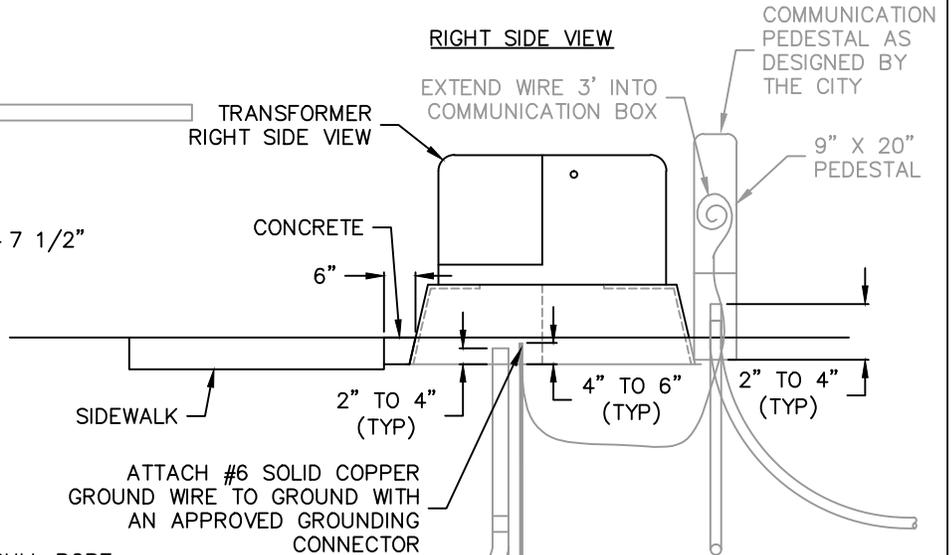
- NOTES:
1. SECTIONALIZER CABINET UNITS FOR 200 AMP 1 PHASE ARE TO BE FABRICATED FROM FIBERGLASS COMPOSITE & MEET **SPANISH FORK POWER'S SPECIFICATIONS**. CONDUIT OPENINGS MUST BE WITHIN THE GROUND SLEEVE WINDOW OF THE SECTIONALIZER.
 2. BLOW IN **1350 LB. MULE TAPE** IN ALL CONDUITS AND TIE SECURELY TO 4 POINT MOUNTING PLATE.
 3. 200 AMP 1 PHASE SECTIONALIZER P/N: NORDIC ND-150-MG-101-X-X OR AN APPROVED EQUIVALENT.
 4. CONTRACTOR TO FURNISH & INSTALL 200-AMP 4-POINT MOUNTING JUNCTION PLATES & 4 POINT JUNCTIONS.
 5. **RIGID METAL (RMC) OR FIBERGLASS (F.G.) SHALL BE USED FOR ALL ELBOWS, OR BENDS 45 DEGREES OR GREATER.**
 6. **SFCN COMMUNICATIONS ELBOWS SHALL BE LONG SWEEP (36") RMC OR F.G..**
 7. SECTIONALIZER SHALL BE SET A MINIMUM OF 6" BEHIND SIDEWALK
 8. CONCRETE SHALL BE POURED IN FRONT OF THE SECTIONALIZER IN BETWEEN THE SECTIONALIZER & SIDEWALK.
 9. AREA AROUND SECTIONALIZER SHALL BE BACKFILLED AND LEVELED A MINIMUM OF 12' IN ALL DIRECTIONS AROUND THE SECTIONALIZER TO PROVIDE A SAFE WORKING AREA FOR THE POWER DEPARTMENT.

DRAWN	JRB		SPANISH FORK CITY		REVISION	DATE	BY	STANDARD DRAWING 200-AMP 1 PHASE SECTIONALIZER	SCALE NONE
DESIGN	JRB		40 SOUTH MAIN STREET						STANDARD 48 OF 65
CHECK	XXX		SPANISH FORK, UT 84660						
DATE	12/15/08		(801) 798-5000						

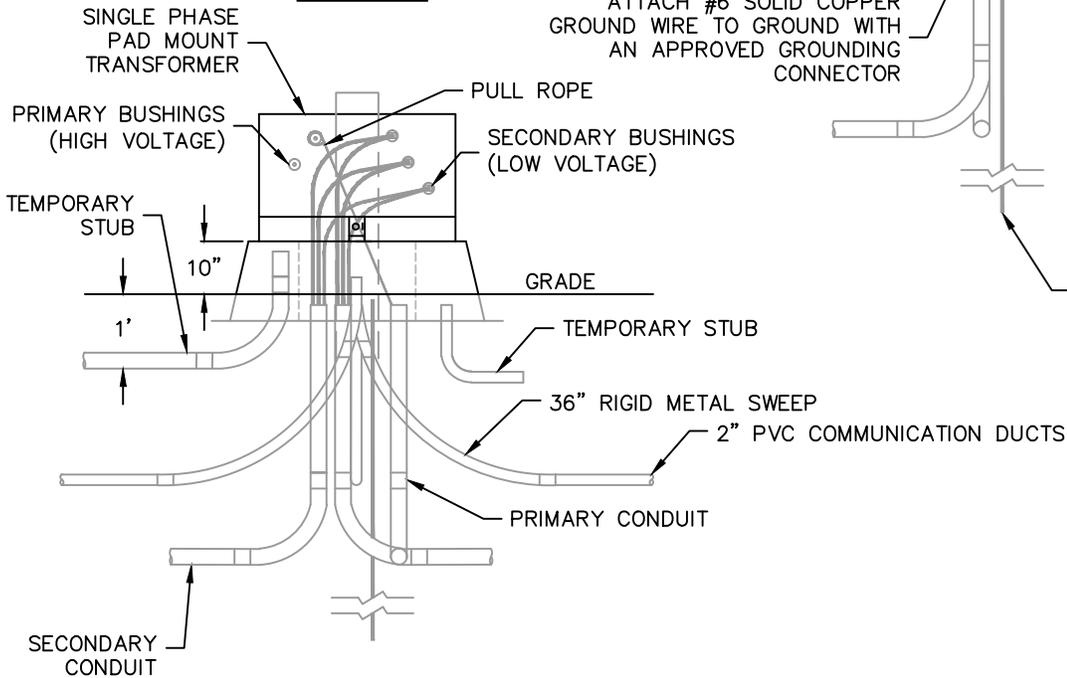
TOP VIEW



RIGHT SIDE VIEW



FRONT VIEW



NOTES:

1. 14 GAUGE SOLID THIN COPPER WIRE SHALL BE INSTALLED THE ENTIRE LENGTH OF EACH STUBBED CONDUIT.
2. CONDUIT COMING INTO ANY TRANSFORMER MUST HAVE A PVC COUPLING, ADAPTER, OR AN INSULATING BUSHING.
3. GROUND SLEEVE FOR 167.5 KVA TRANSFORMER OR LESS SHALL BE NORDIC CBP-37-43-15AB-2 OR APPROVED EQUIVALENT.
4. GROUND LEVEL INSIDE THE GROUND SLEEVE IS THE BOTTOM OF THE GROUND SLEEVE.
5. ALL SECONDARY CABLE TO BE URD SELF-HEALING TYPE.
6. PULL ROPE MUST BE SECURELY TIED TO THE GROUND SLEEVE OR CONDUIT.

DRAWN	RDL
DESIGN	CMT
CHECK	RJH
DATE	8/11/11



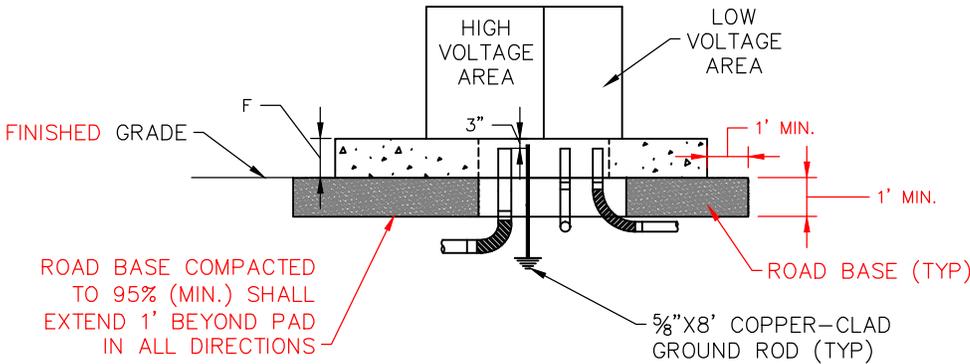
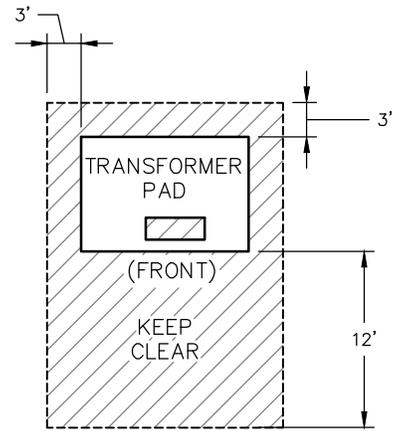
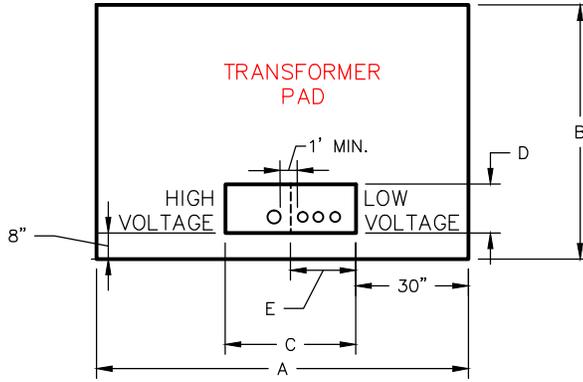
SPANISH FORK CITY
 40 SOUTH MAIN STREET
 SPANISH FORK, UT 84660
 (801) 798-5000

REVISION	DATE	BY

STANDARD DRAWING
 SINGLE PHASE PAD MOUNT
 TRANSFORMER

SCALE
 1"=3'
 STANDARD
 49 OF 65

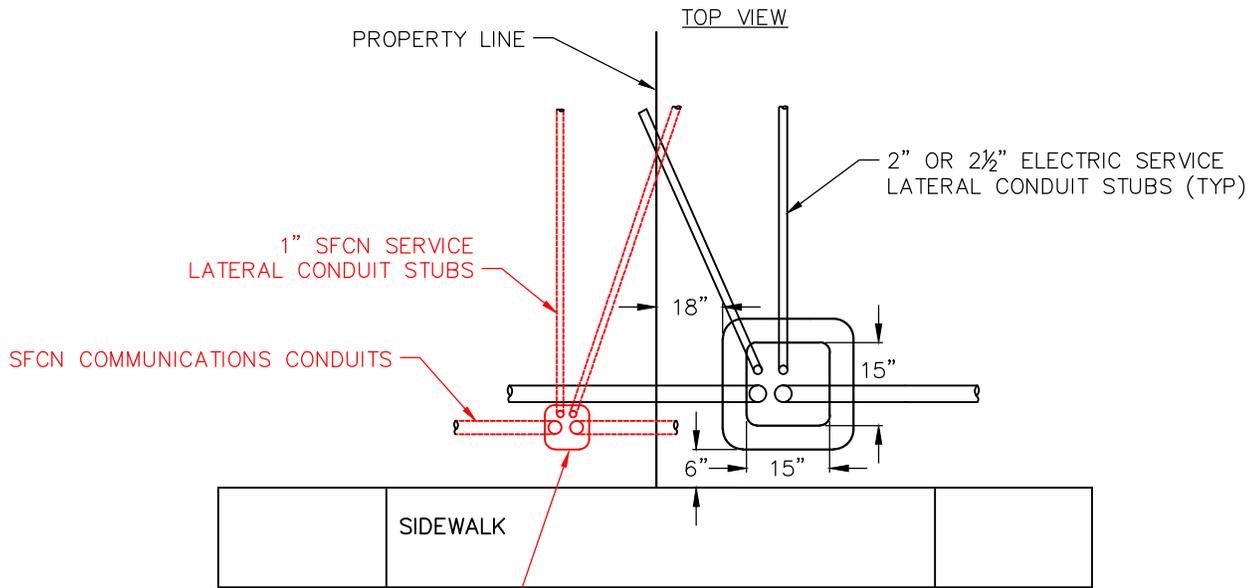
GENERAL TRANSFORMER CLEARANCES



TRANSFORMER KVA RATING	DIMENSIONS					
	A	B	C	D	E	F
75-500 KVA	114"	78"	40"	15"	20"	9"
750-1500 KVA	118"	105"	52"	16"	30"	11"
2000 KVA	CONTACT POWER DEPT.					

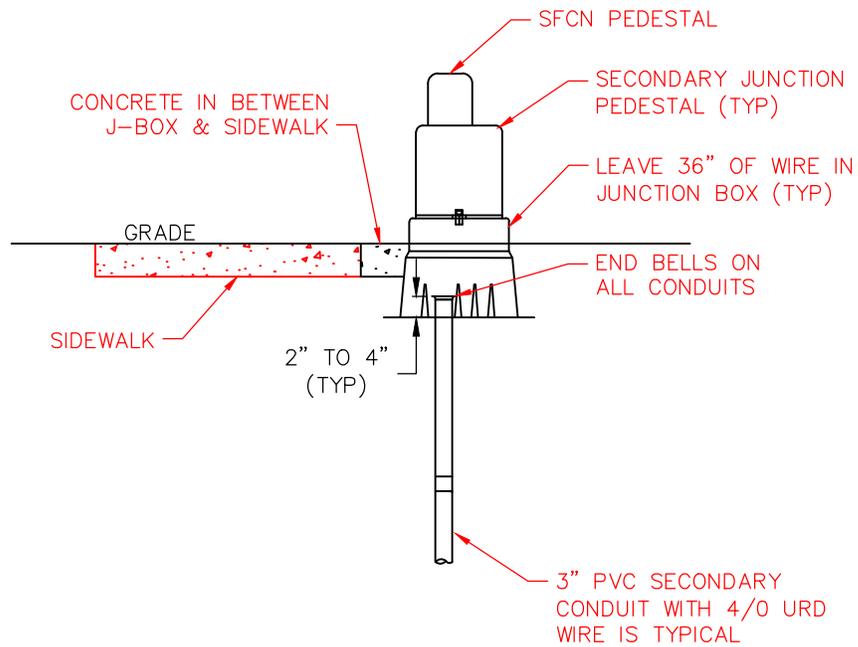
- NOTES:
- SITE PREPARATION & INSPECTIONS.** AFTER EXCAVATION, ALL EXCAVATED AREA 1' PAST PAD SHALL BE BACK FILLED WITH ROAD BASE AND MUST BE COMPACTED TO 95%. THE GROUND MUST BE LEVEL AN ADDITIONAL 12' PAST THE EDGE OF THE PAD ON ALL SIDES AND THEN TAPER OFF. ALL PADS SHALL BE INSPECTED PRIOR TO POURING CONCRETE, AND THE GROUND SHALL HAVE A COMPACTION TEST DONE PRIOR TO THE FORM BEING CONSTRUCTED.
 - CONCRETE.** CONCRETE SHALL BE TYPE E61A. STEEL REINFORCEMENT SHALL BE #4 BARS PLACED AT 12" CENTERS THROUGHOUT THE PAD. THE PAD MUST BE POURED AT LEAST SEVEN FULL DAYS PRIOR TO SETTING THE TRANSFORMER. THE FINISHED SURFACE MUST BE COMPLETELY FLAT AND LEVEL. CONCRETE SHALL BE TESTED BY THE CITY OR THE CITY'S ENGINEERING FIRM PRIOR TO POURING CONCRETE. CONCRETE SHALL CONFORM TO CITY STANDARDS.
 - FABRICATION.** THE PAD SHALL BE CONSTRUCTED ON THE SITE ACCORDING TO THE SPECIFICATIONS.
 - CONDUIT WINDOW LAYOUT.** LOW VOLTAGE CONDUITS SHALL BE FORMED AS TIGHTLY AS POSSIBLE AGAINST THE RIGHT SIDE OF THE OPENING AND SHALL IN NO CASE EXTEND FURTHER THAN 20" FROM THE RIGHT SIDE OF THE CONDUIT WINDOW ON THE SMALL PAD OR 30" ON THE LARGE PADS. NO MORE THAN EIGHT CONDUITS WILL BE USED ON THE LOW VOLTAGE SIDE. ON 2000 KVA PADS, NO MORE THAN 12 SECONDARY CONDUITS WILL BE USED. DO NOT PUT ANY CONCRETE IN OR UNDER THE CONDUIT WINDOW. USE SOIL TO SEPARATE CONDUITS. ALL CONDUITS ENTERING THE PAD SHALL BE SCHEDULE 40 P.V.C. WITH RIGID METAL 90° ELBOWS OR FIBERGLASS.
 - GROUNDING.** A 5/8" X 8' GROUND ROD SHALL BE USED ON THE SMALL PAD AND A 3/4" X 10' ROD ON THE LARGE PADS. THE GROUND ROD SHALL BE INSTALLED ON THE PRIMARY SIDE OF TRANSFORMER.
 - CLEARANCES.** THE FRONT OF THE PAD SHOULD ALWAYS FACE AWAY FROM ADJACENT STRUCTURES AND BE FREE OF OBSTRUCTIONS. AT LEAST THREE FEET MUST SEPARATE THE EDGES OF THE PAD FROM ANY ADJACENT STRUCTURE. THE EDGES OF THE PAD MUST BE AT LEAST TEN FEET FROM ANY COMBUSTIBLE STRUCTURE. IF AN ADJACENT STRUCTURE HAS ANY OVERHANG OR EAVE WITHIN 27 VERTICAL FEET OF THE TOP OF THE PAD, CLEARANCE MUST BE MEASURED FROM THE OUTSIDE OF THE OVERHANG. THE PAD MUST NOT BE PLACED IN AN AREA TEN FEET IN LINE WITH OR THREE FEET TO EITHER SIDE OF ANY WINDOW IN AN ADJACENT STRUCTURE.
 - CLEARANCE FOR A DOOR MUST BE TWENTY FEET IN LINE WITH IT AND TEN FEET ON EITHER SIDE. PADS MUST NOT BE PLACED WITHIN FIFTEEN FEET OF ANY VALVE OR WITHIN TWENTY FEET OF ANY PUMPING OR STORAGE FACILITY CONTAINING FLAMMABLE MATERIAL. NO WALLS, FENCES, OR ANY OTHER OBSTRUCTIONS WILL BE PLACED WITHIN THREE FEET OF THE SIDES OR BACK OF THE PAD, OR WITHIN TWELVE FEET OF THE FRONT OF THE PAD. THE AREA SURROUNDING THE PAD MUST HAVE TWELVE FEET OF CLEAR, LEVEL WORKING AREA FOR MAINTENANCE OF THE TRANSFORMER. THE PAD MAY NOT BE PLACED IN LINE WITH AN AIR INTAKE WITHIN 32 VERTICAL FEET OF THE SURFACE OF THE PAD. ALSO, IT MUST NOT BE PLACED WITHIN 12 FEET VERTICALLY OF A DOOR OR WINDOW.
 - BARRIERS.** IF THE TRANSFORMER PAD IS TO BE LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC, (PARKING LOTS, DRIVEWAYS, ETC.) CONTACT SPANISH FORK CITY POWER FOR PROTECTIVE BARRIER REQUIREMENTS.
 - METERING.** IN GENERAL, THE METERING SHALL BE PLACED ON BUILDINGS OR STRUCTURES.
 - CONNECTIONS.** ALL SECONDARY (LOW VOLTAGE) CABLES & SECONDARY CONNECTIONS ARE THE CONTRACTOR'S RESPONSIBILITY. SPANISH FORK POWER WILL INSTALL & TERMINATE PRIMARY CABLES & CONNECTIONS ONLY.
 - ANCHORING.** CONTRACTOR TO ANCHOR TRANSFORMER TO PAD WITH MINIMUM OF TWO ANCHOR POINTS.

DRAWN	JFJ		SPANISH FORK CITY	REVISION	DATE	BY	STANDARD DRAWING 3 PHASE TRANSFORMER & CONCRETE PAD	SCALE
DESIGN	CMT		40 SOUTH MAIN STREET	08/19/08	08/19/08	JRB		NONE
CHECK	RJH		SPANISH FORK, UT 84660					STANDARD
DATE	02/07/05		(801) 798-5000					50 OF 65



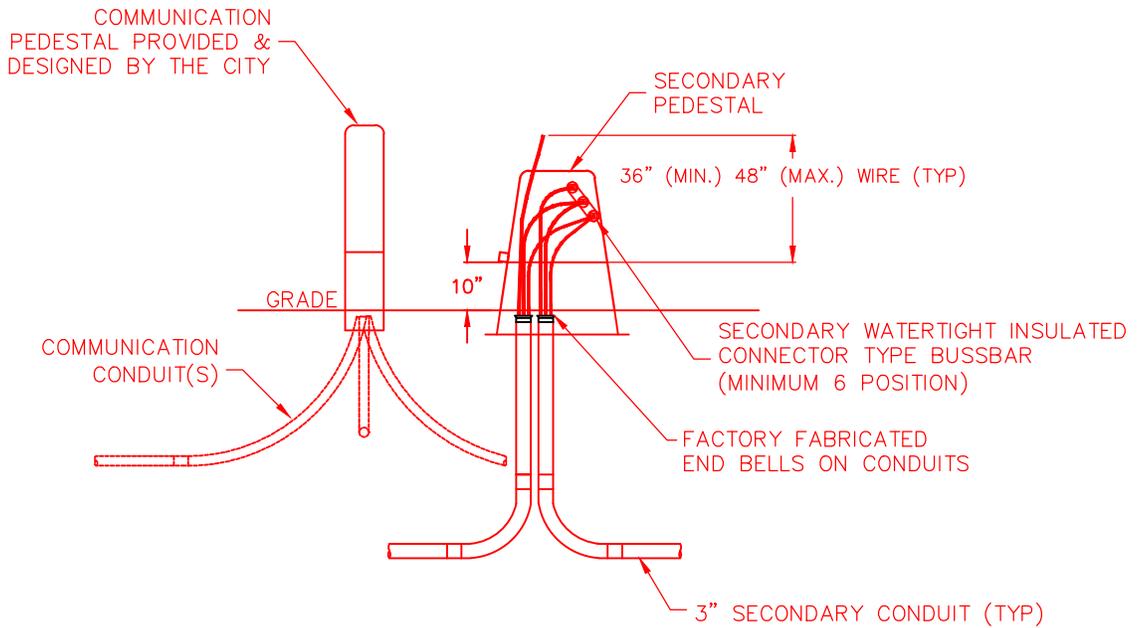
SFCN PEDESTAL SUPPLIED AND DESIGNED BY CITY

RIGHT SIDE VIEW

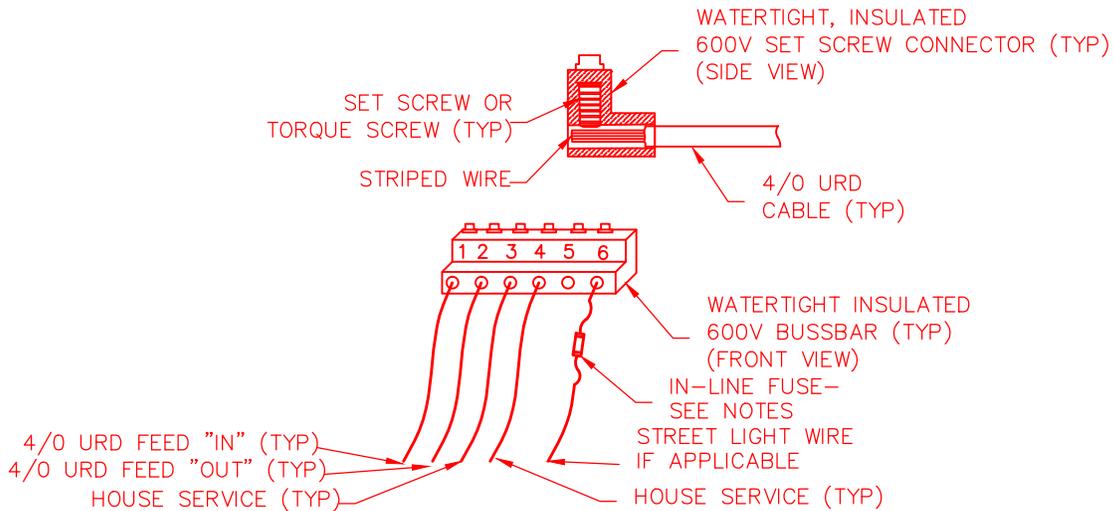


1. CONDUITS ENTERING ANY JUNCTION BOX SHALL HAVE END BELLS TO PROTECT WIRE FROM DAMAGE.
2. SECONDARY WIRE SHALL BE RATED FOR 600 VOLTS AND BE THE URD TYPE. CARE SHALL BE TAKEN IN INSTALLATION AS NOT TO DAMAGE WIRE INSULATION.
3. ALL SECONDARY WIRE SHALL EXTEND A MINIMUM OF 36" & A MAXIMUM OF 48" FROM TOP OF BOX (WITHOUT THE LID).
4. SECONDARY PEDESTALS SHALL FACE TOWARDS THE STREET AND SHALL BE LEVEL.
5. ROADBASE SHALL BE USED UNDER ALL PEDESTALS. ROADBASE SHALL BE COMPACTED TO 95% OF DRY DENSITY. COMPACTION TESTS SHALL BE TAKEN PRIOR TO ANY PEDESTALS BEING SET INTO PLACE.
6. CONDUITS SHALL BE 2" TO 4" HIGHER THAN INSIDE GRADE OF PEDESTAL. (INSIDE GRADE IS THE BOTTOM OF THE PEDESTAL)
7. LOCKING MECHANISM SHALL BE 10" FROM FINISHED GRADE.
8. USE ONLY APPROVED JUNCTION PEDESTALS: PENCELL AG20HDXCL-NL & NORDIC PSP-15-15-30-MG OR APPROVED EQUIVALENT.
9. SECONDARY SERVICE LATERAL CONDUITS SHALL BE SEPARATED HORIZONTALLY IN THE TRENCH FROM COMMUNICATIONS CONDUITS.

DRAWN	JRB		SPANISH FORK CITY	REVISION	DATE	BY	STANDARD DRAWING SECONDARY JUNCTION PEDESTAL	SCALE NONE	
DESIGN	JRB		40 SOUTH MAIN STREET						
CHECK	xxx		SPANISH FORK, UT 84660						
DATE	12/15/08		(801) 798-5000						STANDARD 51 OF 65



SECONDARY CONNECTIONS



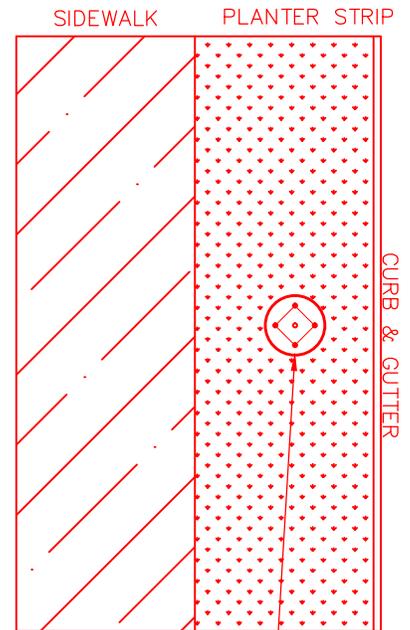
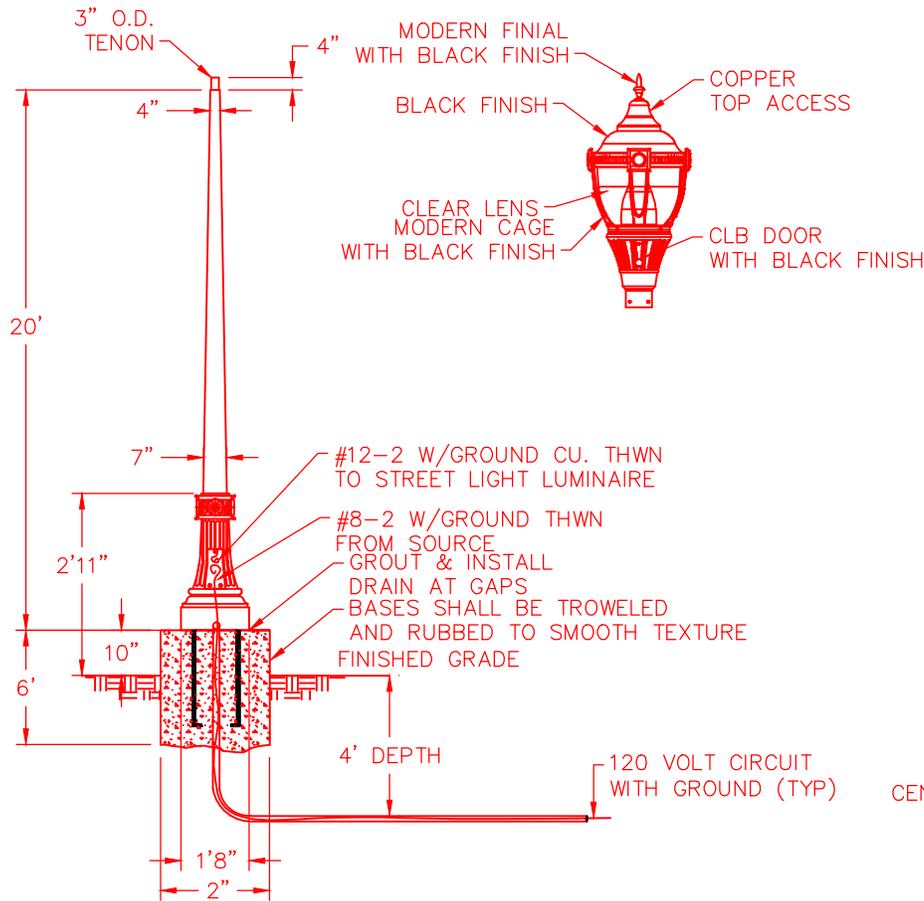
NOTES:

1. INSTALL AN IN-LINE 10 AMP FUSE & FUSE HOLDER ON THE UNGROUNDED 120/240V STREET LIGHT CONDUCTOR(S) IN JUNCTION BOX.
2. CONDUIT ENTERING INTO ANY SECONDARY PEDESTAL MUST HAVE A FABRICATED BELL END.
3. SECONDARY PEDESTAL SHALL BE NORDIC PSP-15-15-30-MG OR PENCELL AG20HDXCL-NL APPROVED EQUIVALENT.
4. GROUND LEVEL INSIDE THE GROUND SLEEVE IS THE BOTTOM OF THE GROUND SLEEVE.
5. ALL SECONDARY CABLE SHALL EXTEND A MINIMUM OF 36" & A MAXIMUM OF 48" FROM TOP OF SECONDARY BOX (WITHOUT LID) AND SHALL BE THE URD TYPE CABLE.
6. ROAD BASE SHALL BE USED UNDER SECONDARY BOXES. ROAD BASE SHALL BE COMPACTED TO 95% AND BE TESTED PRIOR TO BOX BEING SET INTO PLACE.
7. ALL SERVICE STUBS SHALL EXTEND 1' PAST PROPERTY LINE.
8. SECONDARY WATERTIGHT, INSULATED SET SCREW CONNECTORS (UTILCO PED-6-350-SSP OR ELASTIMOLD USB63S OR EQUIVALENT) SHALL ACCEPT A MINIMUM OF SIX INDIVIDUAL WIRES, UNLESS OTHERWISE APPROVED BY ELECTRICAL DEPARTMENT.

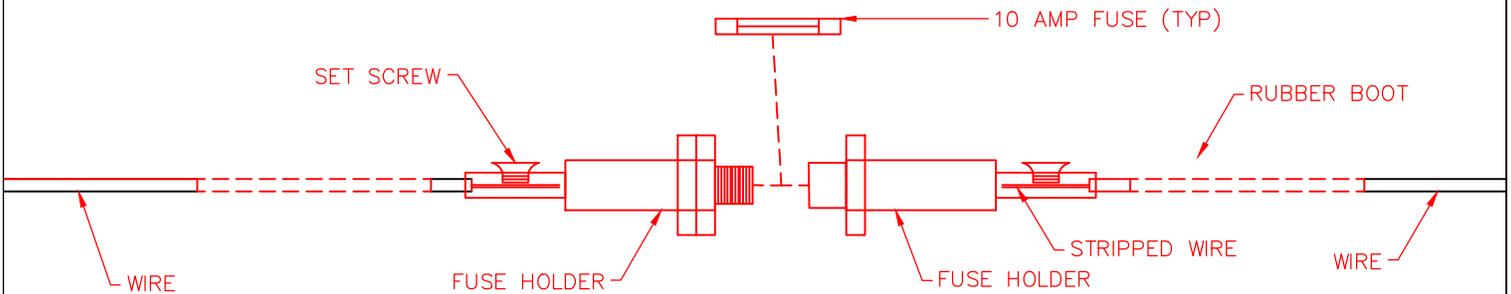
DRAWN	JRB	 <p>SPANISH FORK CITY 40 SOUTH MAIN STREET SPANISH FORK, UT 84660 (801) 804-4500</p>	REVISION	DATE	BY	<p>STANDARD DRAWING SECONDARY PEDESTAL, WIRE & CONNECTIONS</p>	SCALE NONE	
DESIGN	JRB						STANDARD	
CHECK	XX							52 OF 65
DATE	12/15/08							

DECORATIVE STREET LIGHT POLE & LIGHT FIXTURE

POLE BASE LAYOUT PLAN VIEW

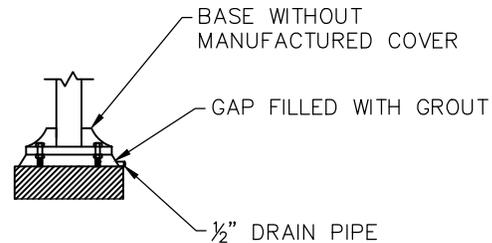
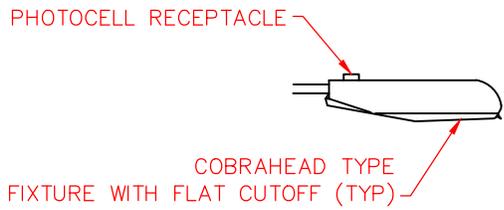
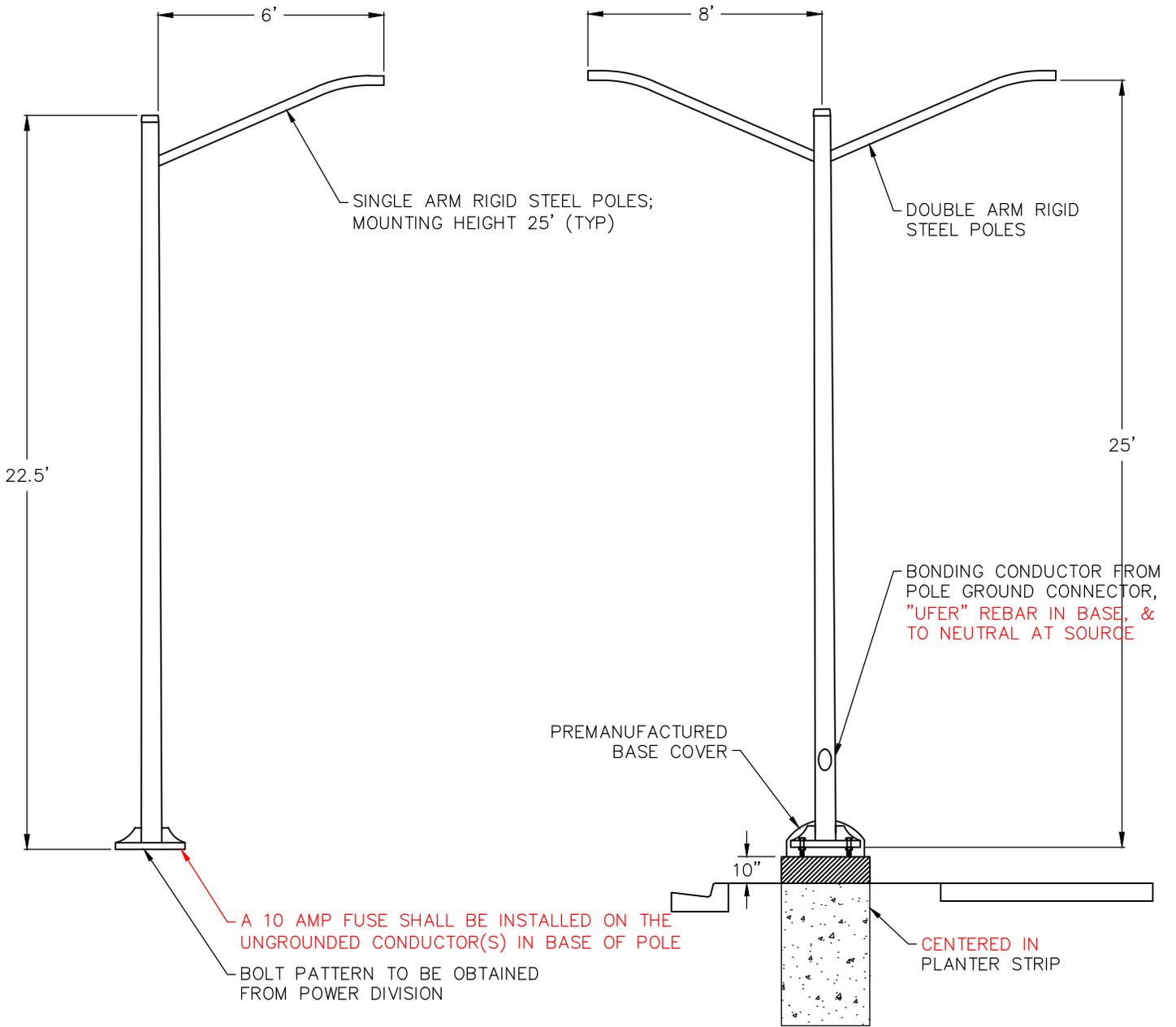


STREET LIGHT FUSING



- NOTES:
1. STREET LIGHT CONDUCTOR(S) SHALL HAVE AN INLINE 10 AMP FUSE & SET SCREW TYPE FUSEHOLDER INSTALLED IN JUNCTION BOX OR TRANSFORMER.
 2. 1" PVC CONDUIT WITH RIGID STEEL OR FIBERGLASS ELBOWS TO RUN FROM BASE OF STREET LIGHT TO CLOSEST TRANSFORMER OR SECONDARY PEDESTAL.
 3. IF PLANTER EXISTS STREET LIGHT SHALL BE CENTERED IN PLANTER STRIP. IF THERE IS NO PLANTER LIGHT BASE SHALL BE 3' ON CENTER FROM TOP BACK OF CURB. BOLT PATTERN SHALL BE ON A DIAMOND TO THE CURB UNLESS OTHERWISE SPECIFIED.
 4. STREET LIGHT POLE, FIXTURE, LUMINAIRE, PHOTOCCELL, BOLTS, NUTS, WASHERS SHALL BE PROVIDED BY CITY.
 5. BASES SHALL HAVE A SMOOTH OR RUBBED FINISH, FREE FROM HONEYCOMB & CRACKS.
 6. STREET LIGHT BASE SHALL BE BONDED TO STREET LIGHT POLE BY A "UFER" TYPE #6 CU BONDING CONDUCTOR.
 7. THE GROUNDING CONDUCTOR SHALL BE TERMINATED WITH THE GROUND (NEUTRAL) CONDUCTOR AT THE SOURCE.

DRAWN	JRB		SPANISH FORK CITY	REVISION	DATE	BY	STANDARD DRAWING DECORATIVE STREET LIGHT POLE AND FIXTURE	SCALE NONE
DESIGN	JRB		40 SOUTH MAIN STREET					STANDARD 53 OF 65
CHECK	KP		SPANISH FORK, UT 84660					
DATE	12/15/08		(801) 798-5000					

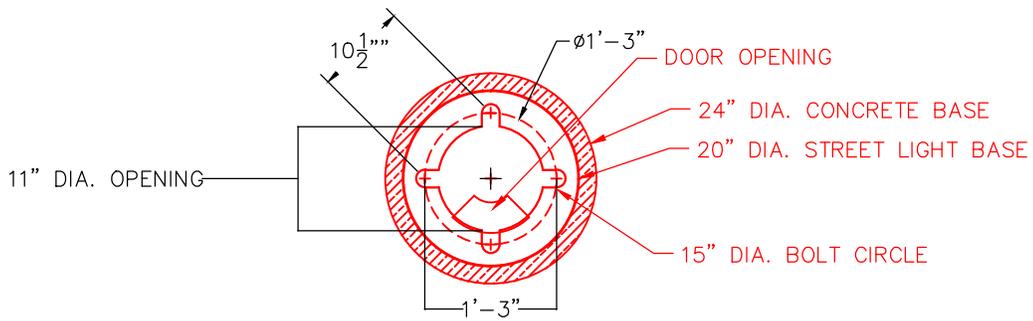


NOTES:

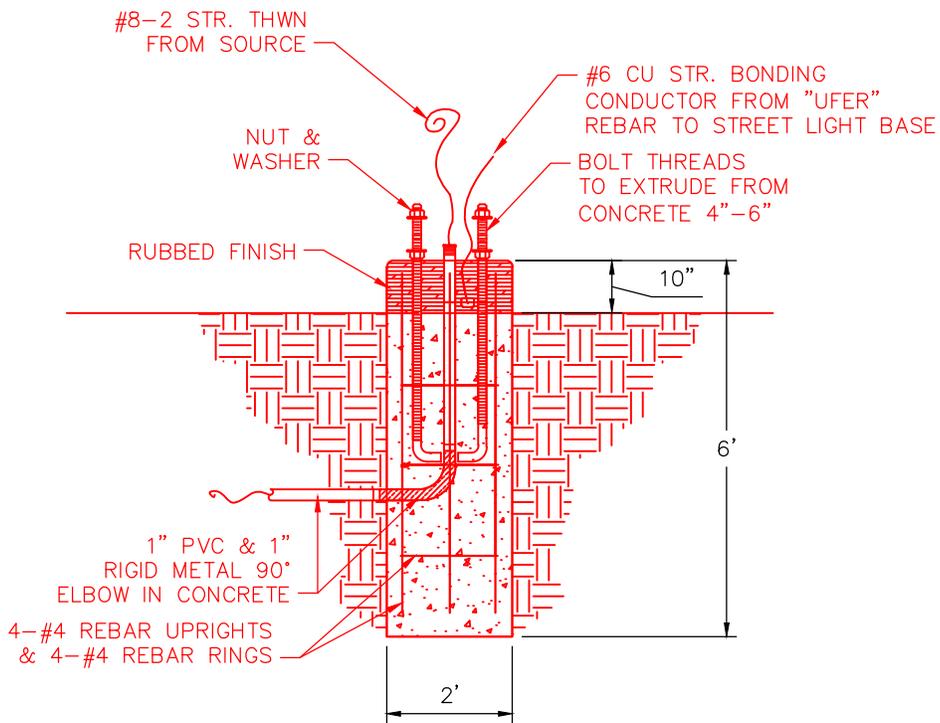
1. STREET LAMPS FOR COLLECTOR ROAD: 120/240 VOLT, 90 DEGREE CUT OFF, 250 W. HIGH PRESSURE SODIUM LUMINAIRE HEADS – COBRA STYLE.
2. STREET LAMPS FOR STANDARD ROAD: 120/240 VOLT, 90 DEGREE CUT OFF, 100 W. HIGH PRESSURE SODIUM LUMINAIRE HEADS – COBRA STYLE.
3. 1" PVC CONDUIT WITH RIGID STEEL ELBOWS TO RUN FROM BASE OF STREET LIGHT TO CLOSEST TRANSFORMER OR SECONDARY PEDESTAL.
4. IF PLANTER EXISTS STREET LIGHT WILL BE **CENTERED** IN PLANTER STRIP.
5. **THE USE OF THE OPTIONAL STREET LIGHT SHALL BE DETERMINED BY THE ELECTRICAL DEPARTMENT.**
6. **SEE "STREET LIGHT BASE DETAILS" FOR SPECIFICATIONS FOR STREET LIGHT BASE.**

DRAWN	JFJ		SPANISH FORK CITY	REVISION	DATE	BY	STANDARD DRAWING OPTIONAL STREET LIGHT POLE & FIXTURE	SCALE NONE
DESIGN	CMT		40 SOUTH MAIN STREET					STANDARD
CHECK	RJH		SPANISH FORK, UT 84660					
DATE	05/04/04		(801) 798-5000					

ORIENTATION VIEWED FROM TOP OF POLE



STREET LIGHT BASE DETAIL



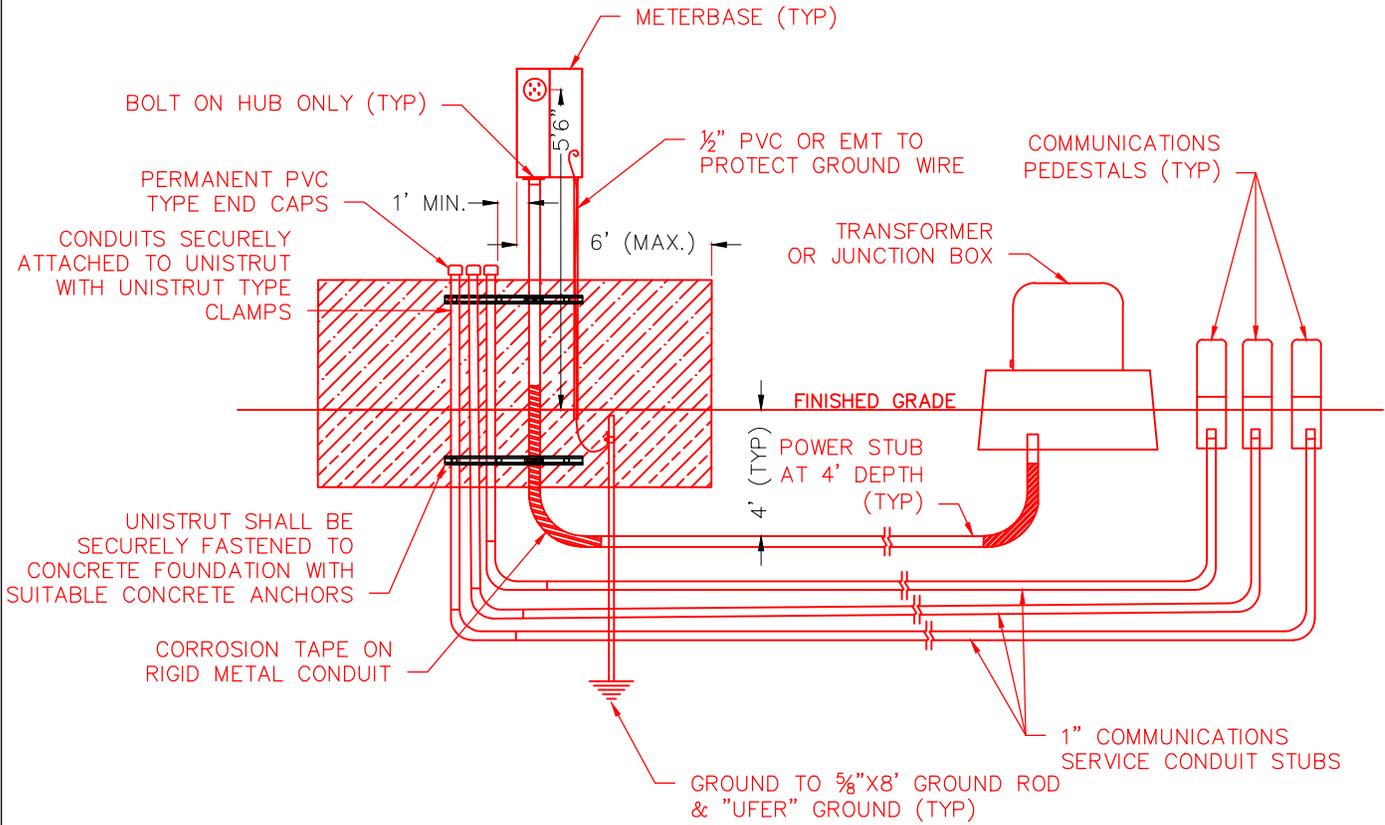
NOTES:

1. STREET LIGHT BASES SHALL BE INSPECTED PRIOR TO POURING CONCRETE.
2. STREET LIGHT BASES SHALL BE 2' IN DIAMETER AND 6' IN DEPTH WITH 10" OF BASE EXPOSED ABOVE TOP BACK OF CURB.
3. EXPOSED CONCRETE SHALL HAVE A RUBBED FINISH, WITH ALL HONEYCOMB OR CRACKS FILLED.
4. STREET LIGHT BASE SHALL BE CENTERED IN PLANTER STRIP OR 3' FROM TOP BACK OF CURB TO CENTER OF BASE IF NO PLANTER STRIP IS PRESENT.
5. SONNETUBE SHALL BE KEPT DRY AND SHALL NOT BE ALLOWED TO DEFORM IN ANY WAY.
6. CONCRETE COVER OVER REINFORCING STEEL SHALL BE 2" UNLESS OTHERWISE APPROVED.
7. USE 4-#4 REBAR UPRIGHTS & 4-#4 REBAR RINGS SPACED EVENLY AND KEPT 2" FROM SIDES, TOP AND BOTTOM OF CONCRETE.
8. GROUT GAP IN BETWEEN STREET LIGHT AND BASE & PROVIDE 1/2" DRAIN PIPE FOR WATER.

DRAWN	JRB	 SPANISH FORK CITY 40 SOUTH MAIN STREET SPANISH FORK, UT 84660 (801) 798-5000	REVISION	DATE	BY	STANDARD DRAWING STREET LIGHT POLE BASE DETAIL	SCALE NONE
DESIGN	JRB						STANDARD
CHECK	xxx						
DATE	4/10/08						

SERVICE SIZE	NEC WIRE SIZE	CONDUIT SIZE
100 AMP	#2 ALU	2" - 2½"
125 AMP	1/0 ALU	2" - 2½"
150 AMP	2/0 ALU	2" - 2½"
200 AMP	4/0 ALU	2" - 2½"
201 AMPS-400 AMPS	SEE POWER DEPT.	

SURFACE MOUNT FRONT VIEW



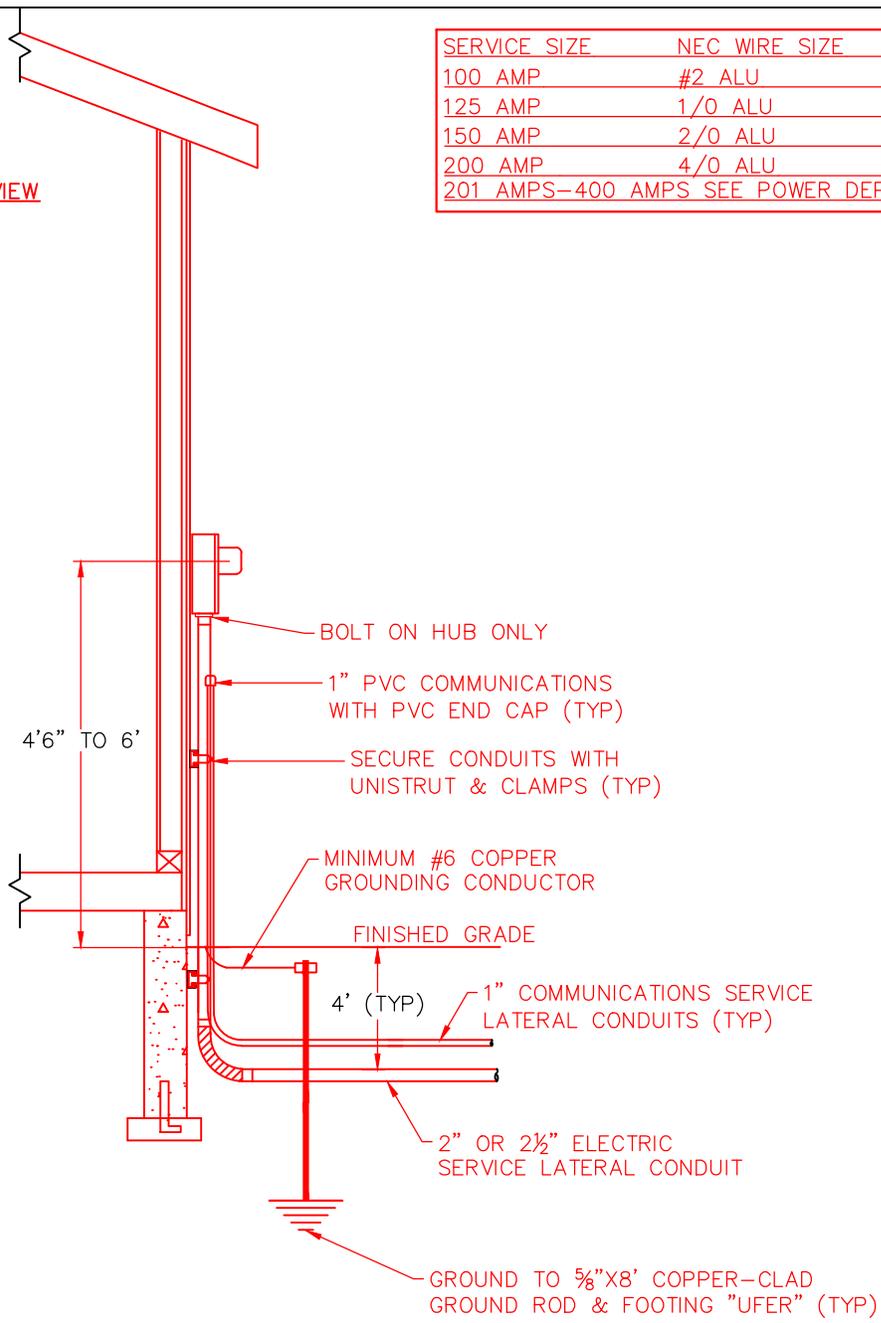
NOTES:

1. ALL MATERIALS TO BE SUPPLIED BY CUSTOMER EXCEPT METER.
2. ALL TEMPORARY/PERMANANT EQUIPMENT SHALL COMPLY WITH CURRENT N.E.C., N.E.S.C, AND CITY STANDARDS.
3. SPANISH FORK ELECTRICAL DIVISION WILL FURNISH AND INSTALL METER AND CONNECT SERVICE IN TRANSFORMER OR JUNCTION BOX.
4. SERVICE CONDUCTORS SHALL MEET CURRENT NATIONAL ELECTRIC CODE.
5. GROUND ROD TO BE DRIVEN A MINIMUM OF 6' IN UNDISTURBED SOIL. GROUNDING CONDUCTOR CONNECTED TO GROUND ROD SHALL BE MINIMUM OF #6 COPPER.
6. ADDRESS MUST BE POSTED ON PROPERTY DURING ALL PHASES OF CONSTRUCTION.
7. ENOUGH WIRE SHALL BE PROVIDED TO EXTEND A MINIMUM OF 3' PAST THE TRANSFORMER OR SECONDARY PEDESTAL GROUND SLEEVE.
8. RIGID METAL CONDUITS SHALL BE TAPED WITH ANTI-CORROSION TAPE. TAPE SHALL EXTEND 6" ABOVE FINISHED GRADE.
9. ALL POWER SERVICE LATERAL CONDUITS SHALL BE 2", 2 ½" OR 3". TO DETERMINE SIZE FIELD VERIFY BY EXCAVATING THE SERVICE STUBS.
10. METERBASE SHALL BE LOCATED WITHIN THE FRONT 6' OF THE SIDE OF THE HOUSE. OTHER LOCATION SHALL FIRST BE APPROVED BY POWER DEPT.
11. METER SOCKET SHALL BE PLACED A MINIMUM OF 4'6" AND A MAXIMUM OF 6' TO CENTER OF SOCKET FROM FINISHED GRADE.
12. CONTACT POWER DEPT. TO SCHEDULE APPOINTMENT FOR ASSISTANCE IN PULLING IN URD WIRE INTO ENERGIZED TRANSFORMERS.

DRAWN	JRB	 <p>SPANISH FORK CITY 40 SOUTH MAIN STREET SPANISH FORK, UT 84660 (801) 798-5000</p>	REVISION	DATE	BY	<p>STANDARD DRAWING RESIDENTIAL UNDERGROUND SERVICE 200 AMPS OR LESS</p>	SCALE NONE
DESIGN	JRB		12/08/08				<p>STANDARD 56A OF 65</p>
CHECK	KP						
DATE	10/07/08						

SURFACE MOUNT SIDE VIEW

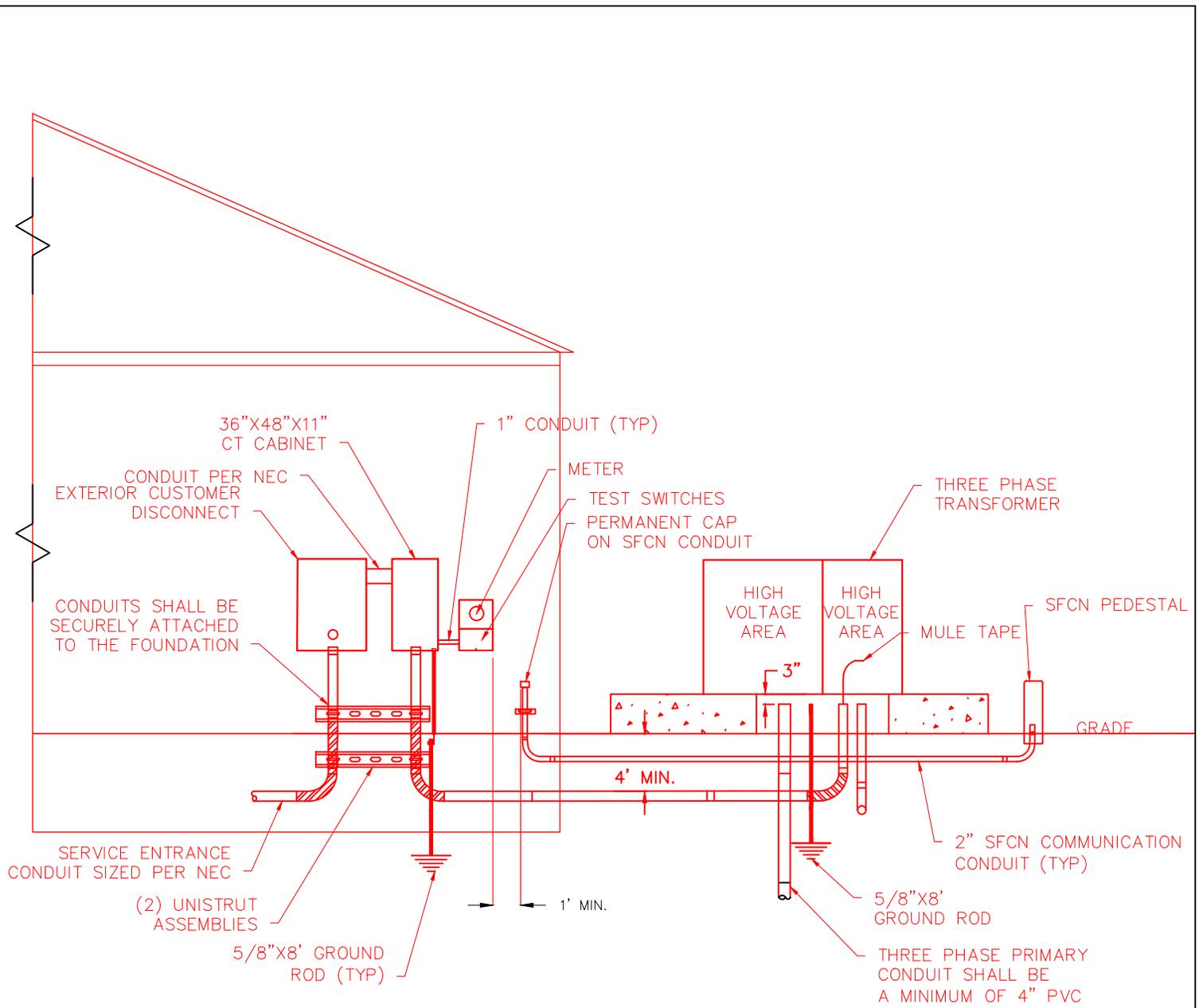
SERVICE SIZE	NEC WIRE SIZE	CONDUIT SIZE*
100 AMP	#2 ALU	2"-2½"
125 AMP	1/0 ALU	2"-2½"
150 AMP	2/0 ALU	2"-2½"
200 AMP	4/0 ALU	2"-2½"
201 AMPS-400 AMPS SEE POWER DEPT.		



***NOTES:**

1. ALL MATERIALS TO BE SUPPLIED BY CUSTOMER EXCEPT METER.
2. ALL TEMPORARY/PERMANANT EQUIPMENT SHALL COMPLY WITH CURRENT N.E.C., N.E.S.C, AND CITY STANDARDS.
3. METER SOCKET SHALL BE A MINIMUM OF 4'6" & A MAXIMUM OF 6' TO CENTER OF SOCKET FROM FINISHED GRADE.
4. SPANISH FORK ELECTRICAL DIVISION WILL FURNISH AND INSTALL METER AND CONNECT SERVICE IN TRANSFORMER OR JUNCTION BOX.
5. SERVICE CONDUCTORS SHALL MEET CURRENT NATIONAL ELECTRIC CODE.
6. GROUND ROD TO BE DRIVEN A MINIMUM OF 6' IN UNDISTURBED SOIL. GROUNDING CONDUCTOR CONNECTED TO GROUND ROD SHALL BE A MINIMUM OF #6 COPPER.
7. ADDRESS MUST BE POSTED ON PROPERTY DURING ALL PHASES OF CONSTRUCTION.
8. ENOUGH WIRE SHALL BE PROVIDED TO EXTEND A MINIMUM OF 3' PAST THE TRANSFORMER OR SECONDARY PEDESTAL GROUND SLEEVE.
9. RIGID METAL CONDUITS SHALL BE TAPED WITH ANTI-CORROSION TAPE. TAPE SHALL EXTEND 6" ABOVE FINISHED GRADE.*
10. ALL POWER SERVICE LATERAL CONDUITS SHALL BE 2", 2½" OR 3". TO DETERMINE SIZE FIELD VERIFY BY EXCAVATING THE EXISTING SERVICE STUBS.
11. METERBASE SHALL BE LOCATED ON THE FRONT 6' OF THE SIDE OF THE HOUSE.

DRAWN	JRB		SPANISH FORK CITY	REVISION	DATE	BY	STANDARD DRAWING RESIDENTIAL UNDERGROUND SERVICE 200 AMPS OR LESS (SIDE VIEW)	SCALE NONE	
DESIGN	JRB		40 SOUTH MAIN STREET						STANDARD 56B OF 65
CHECK	XXX		SPANISH FORK, UT 84660						
DATE	12/15/08		(801) 798-5000						



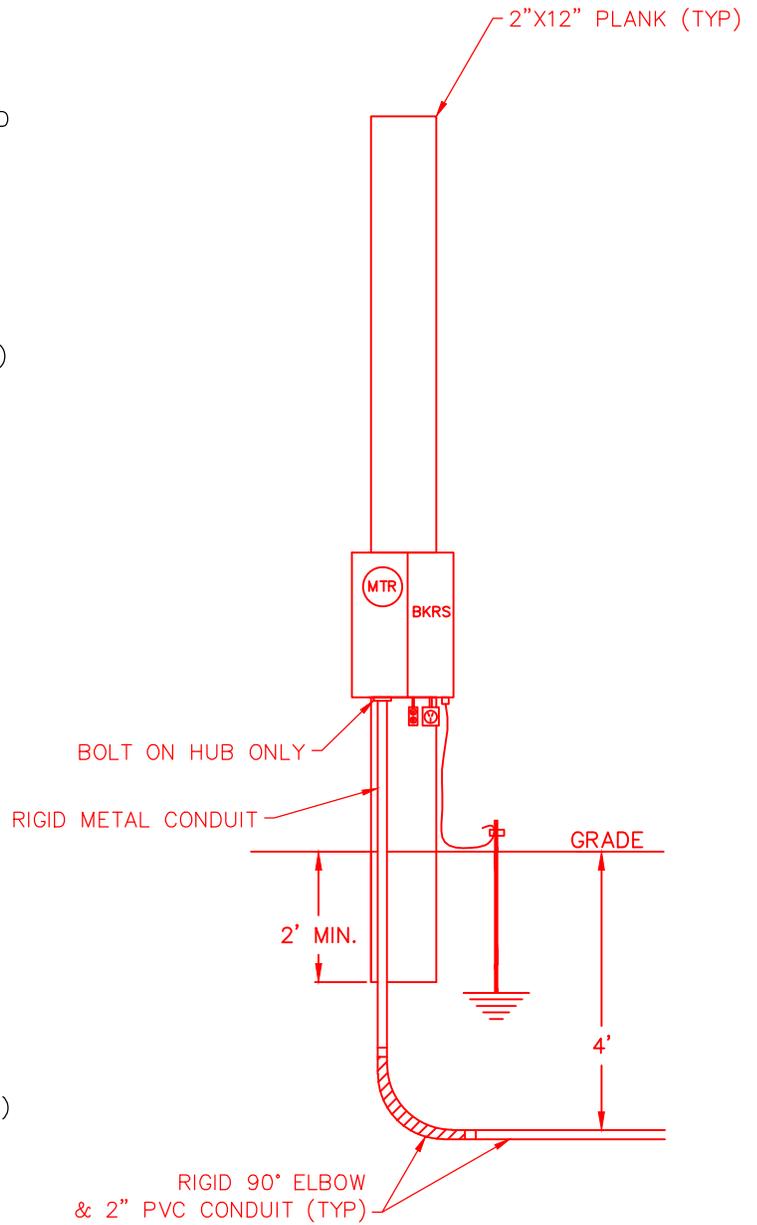
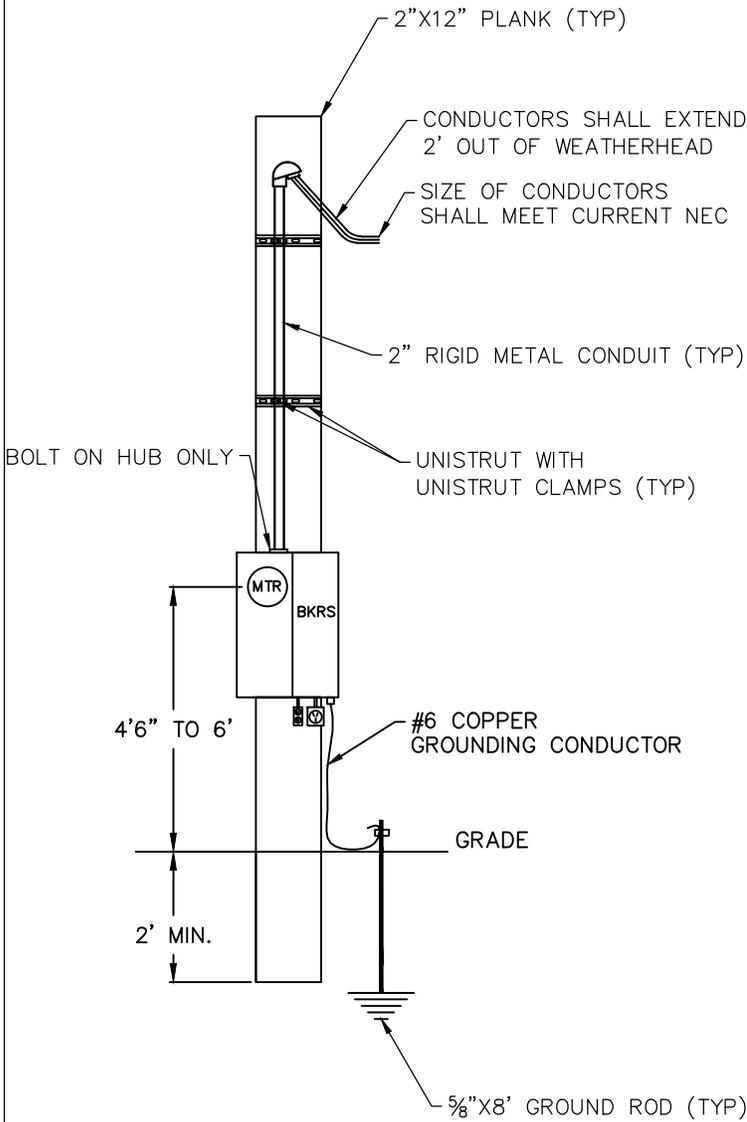
NOTES:

1. ALL SERVICE LOCATIONS, MATERIALS, EQUIPMENT SHALL BE APPROVED BY POWER DEPARTMENT.
2. 36" MINIMUM CLEARANCES (SIDES AND ABOVE) FROM DOORS, WINDOWS, STAIRS, GAS METERS SHALL BE OBSERVED. ADDITIONAL CLEARANCES MAY BE REQUIRED.
3. 8' MINIMUM CLEARANCE SHALL BE REQUIRED IN FRONT OF SERVICES, METERS. ADDITIONAL CLEARANCES MAY BE REQUIRED.
4. CITY WILL FURNISH METERBASE & TEST SWITCH FOR CONTRACTOR TO INSTALL. (SEE POWER DEPT.)
5. GROUNDING & BONDING OF CABINETS, CONDUITS, & OTHER EQUIPMENT SHALL MEET NEC.
6. SERVICES 200 AMPS OR LESS SHALL USE A LINK BYPASS METERBASE.
7. SERVICES SIZED 800 AMPS OR LESS MAY USE STAND ALONE TYPE CT CABINETS. FOR SERVICES LARGER THAN 800 AMPS CONTACT THE POWER DEPARTMENT.
8. SERVICES 800 AMPS OF LESS USE CT CABINET MILBANK P/N: CT364811-HC & MOUNTING RACK P/N: K4798 OR AN APPROVED EQUIVALENT.
9. SERVICE CONDUITS SHALL BE A MINIMUM OF 4' IN DEPTH, AND MEET CITY STANDARDS.
10. ELECTRICAL CONTRACTOR SHALL PROVIDE & INSTALL SERVICE CONDUCTORS, & SHALL MAKE CONNECTIONS IN THE SECONDARY SIDE OF THE TRANSFORMER.
11. CUSTOMER SHALL OWN & MAINTAIN SERVICE CONDUCTORS FROM TRANSFORMER TO THE CUSTOMER SERVICE DISCONNECT.

DRAWN	JRB	 <p>SPANISH FORK CITY 40 SOUTH MAIN STREET SPANISH FORK, UT 84660 (801) 804-4450</p>	REVISION	DATE	BY	<p>STANDARD DRAWING 3 PHASE UNDERGROUND SERVICE 201-800 AMPS</p>	SCALE NONE
DESIGN	JRB						<p>STANDARD 57 OF 65</p>
CHECK	KP						
DATE	03/06/08						

OVERHEAD TEMPORARY POWER

UNDERGROUND TEMPORARY POWER

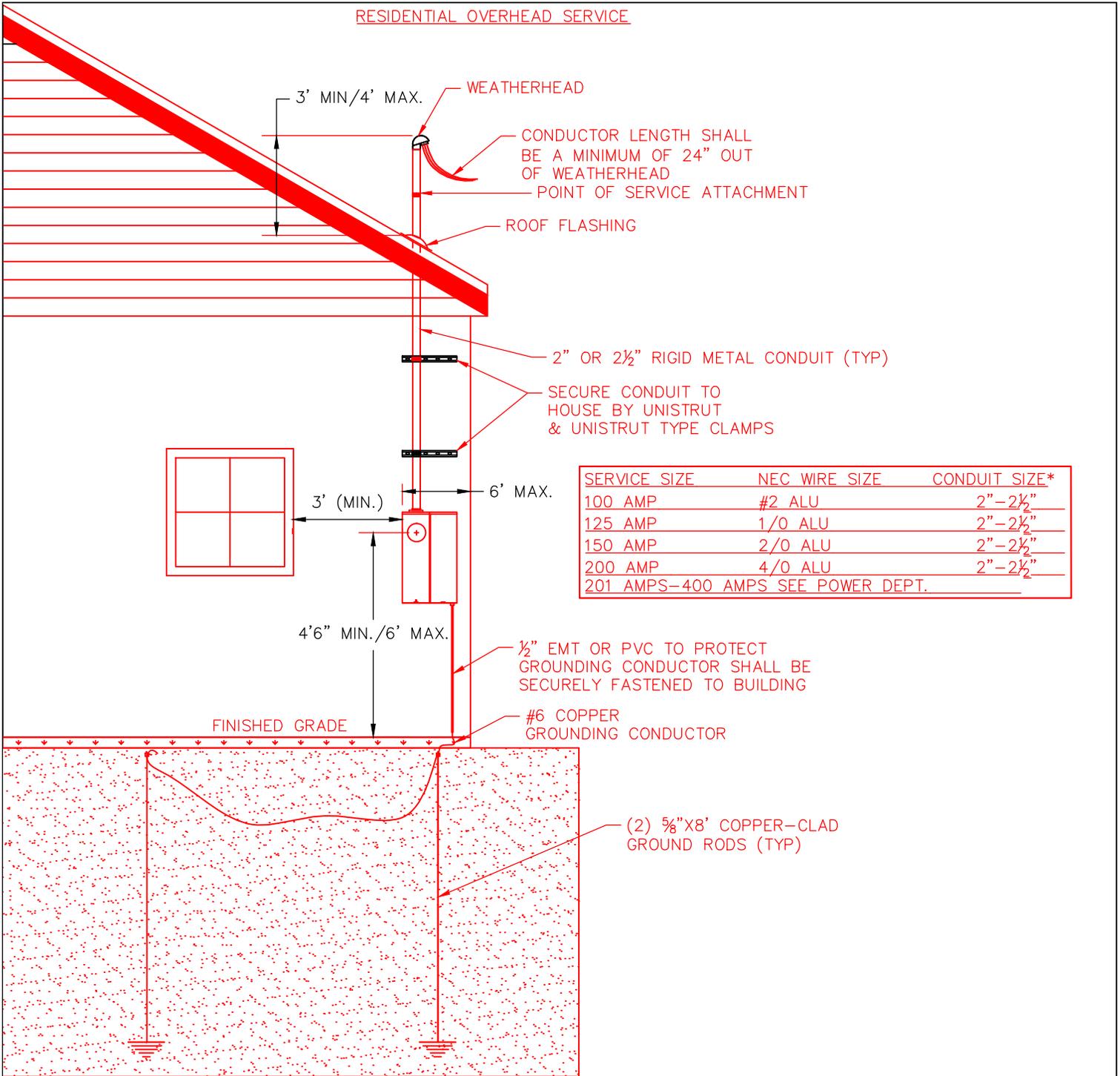


NOTES:

1. ALL MATERIALS TO BE SUPPLIED BY CUSTOMER EXCEPT METER.
2. ALL TEMPORARY EQUIPMENT SHALL COMPLY WITH CURRENT N.E.C. TEMPORARY POWER ARTICLES..
3. TEMPORARY SERVICES MAY NOT BE PLACED ON CITY POLES UNLESS OTHERWISE APPROVED.
4. TEMPORARY POWER POLES TO BE 2"X12" PLANKS OR 6"X6" POST AND BE BURIED A MINIMUM OF 2' IN DEPTH.
5. SPANISH FORK ELECTRICAL DIVISION WILL FURNISH AND INSTALL METER AND CONNECT SERVICE LOOP.
6. SERVICE CONDUCTORS WILL BE #4 C.U. OR LARGER.
7. GROUND ROD TO BE DRIVEN A MINIMUM OF 6' IN UNDISTURBED SOIL.
8. ENOUGH SERVICE CABLE AND SUPPORTS SHALL BE PROVIDED TO COMPLETE DRIP LOOP AND CONNECTIONS AT POLE.
9. ALL TEMPORARY POWER POLES SHALL BE PLACED WITHIN 10' OF SERVICE POWER POLE. CONTACT POWER DEPT. WITH ANY QUESTIONS.
10. ALL LOCATIONS FOR TEMPORARIES SHALL BE FIRST APPROVED BY POWER DEPARTMENT.

DRAWN	JRB	 <p>SPANISH FORK CITY 40 SOUTH MAIN STREET SPANISH FORK, UT 84660 (801) 798-5000</p>	REVISION	DATE	BY	<p>STANDARD DRAWING TEMPORARY SERVICE FOR OVERHEAD & UNDERGROUND LINES</p>	SCALE NONE
DESIGN	JRB						STANDARD
CHECK	KP						
DATE	1/07/09						

RESIDENTIAL OVERHEAD SERVICE



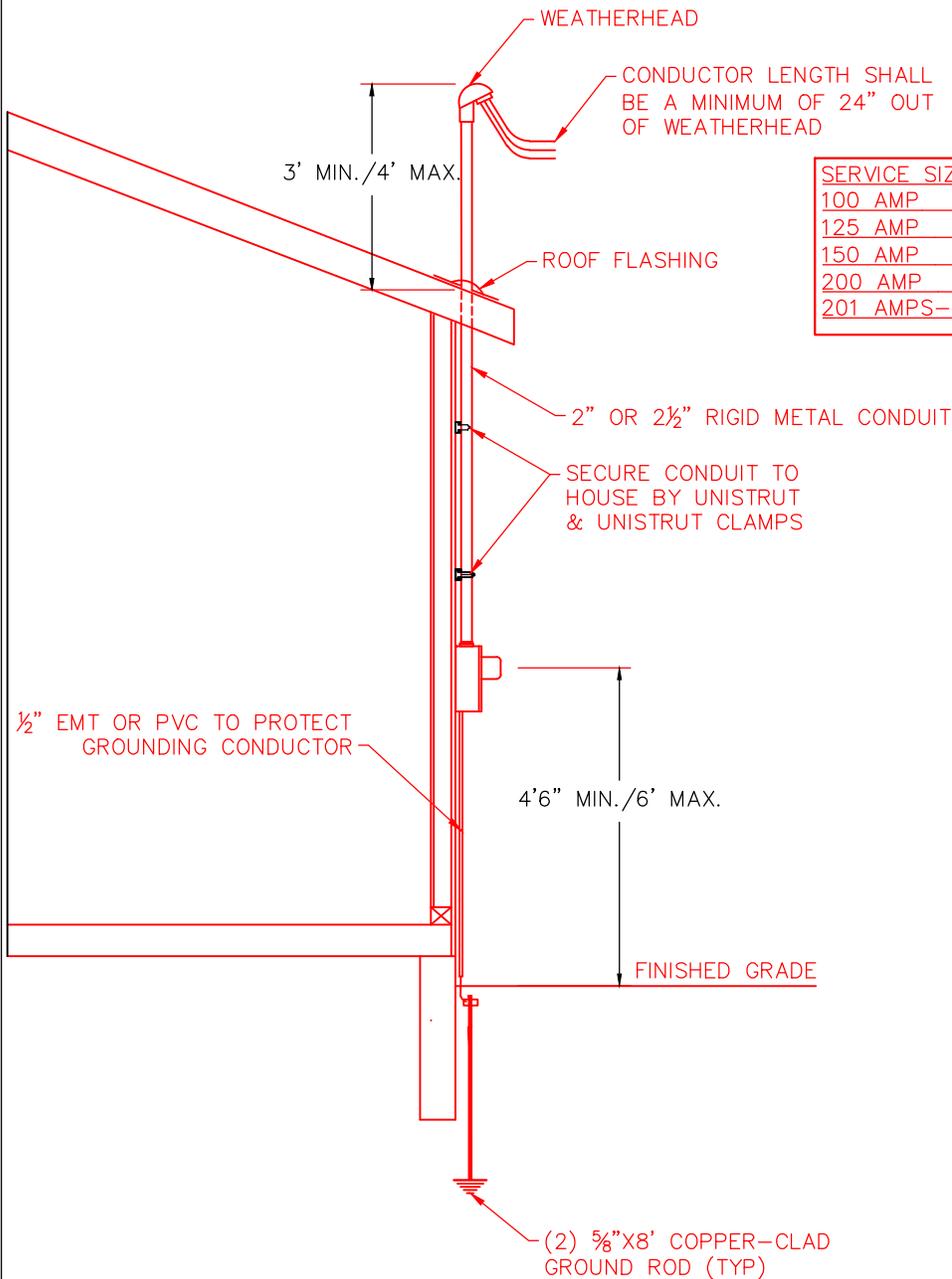
SERVICE SIZE	NEC WIRE SIZE	CONDUIT SIZE*
100 AMP	#2 ALU	2"-2 1/2"
125 AMP	1/0 ALU	2"-2 1/2"
150 AMP	2/0 ALU	2"-2 1/2"
200 AMP	4/0 ALU	2"-2 1/2"
201 AMPS-400 AMPS	SEE POWER DEPT.	

NOTES:

1. ALL METERBASE SERVICE LOCATIONS MUST FIRST BE APPROVED BY POWER DEPARTMENT.
2. IN GENERAL ALL METERBASES SHALL BE LOCATED ON THE FRONT 6' OF THE SIDE OF THE HOUSE.
3. METER HEIGHT SHALL BE A MINIMUM OF 4'6" AND A MAXIMUM OF 6' TO CENTER OF METER SOCKET.
4. METERBASE SHALL BE KEPT A MINIMUM OF 3' FROM DOORS, WINDOWS, STAIRS, GAS METERS.
5. ALL BONDING AND GROUNDING SHALL MEET CURRENT NEC AND SPANISH FORK POWER'S REQUIREMENTS. FOR EXISTING HOMES (2) GROUND RODS SHALL BE REQUIRED IN ADDITION TO ANY OTHER NEC GROUNDING REQUIREMENTS.
6. ALL SERVICE CONDUCTOR SIZES AND TYPES SHALL MEET CURRENT NEC.
7. IN GENERAL ONLY CONTINUOUS LENGTHS OF CONDUIT SHALL BE USED. NO JOINTS OR COUPLERS ARE PERMITTED IN SERVICE CONDUITS UNLESS OTHERWISE APPROVED.

DRAWN	JRB		SPANISH FORK CITY		REVISION	DATE	BY	STANDARD DRAWING RESIDENTIAL OVERHEAD SERVICE 200 AMPS OR LESS	SCALE NONE
DESIGN	JRB		40 SOUTH MAIN STREET						STANDARD 59 OF 65
CHECK	xxx		SPANISH FORK, UT 84660						
DATE	4/10/08		(801) 804-4450						

RESIDENTIAL SERVICE 200 AMPS OR LESS
SIDE VIEW

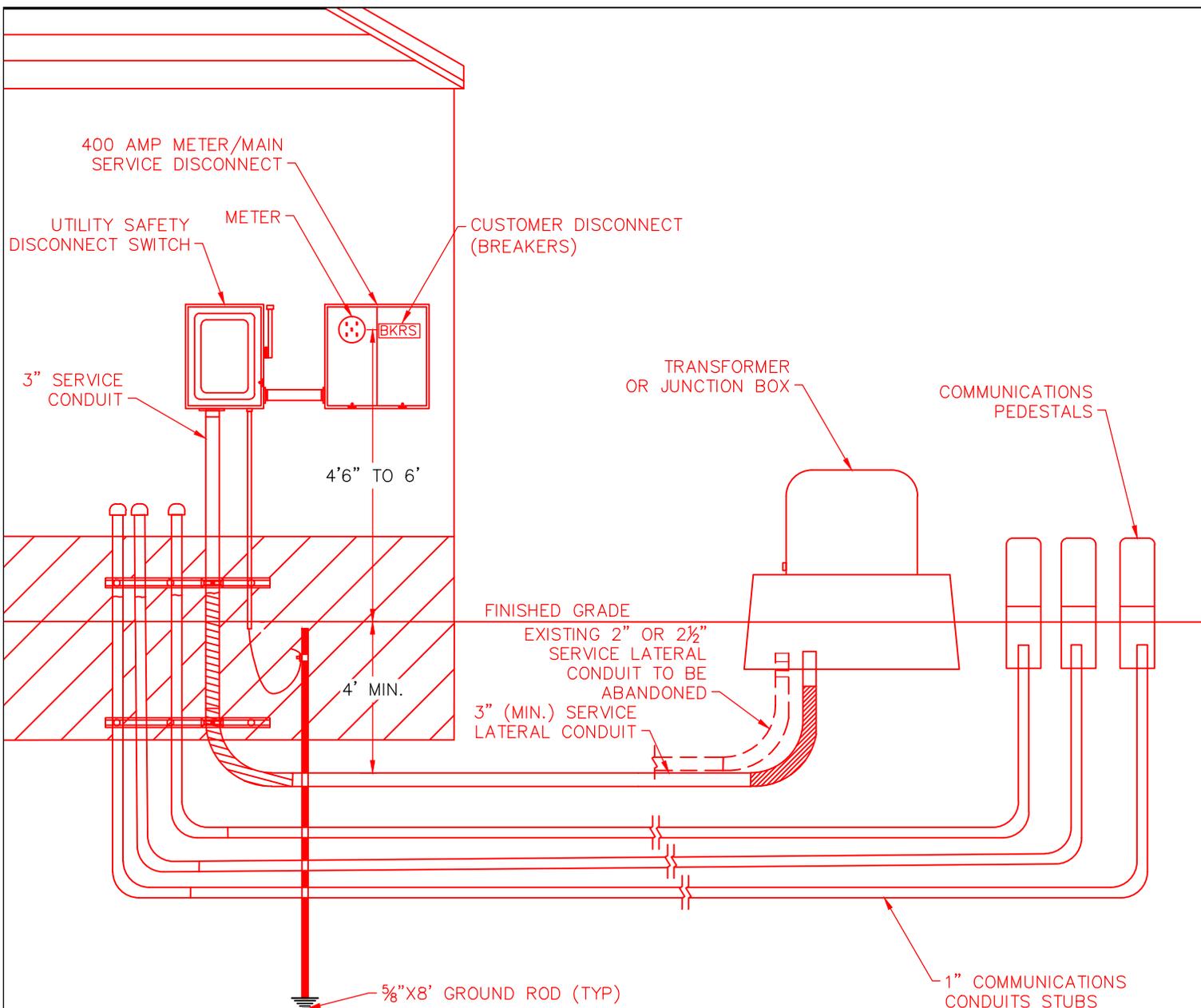


SERVICE SIZE	NEC WIRE SIZE	CONDUIT SIZE*
100 AMP	#2 ALU	2"
125 AMP	1/0 ALU	2"
150 AMP	2/0 ALU	2"
200 AMP	4/0 ALU	2"
201 AMPS-400 AMPS	SEE POWER DEPT.	

NOTES:

1. ALL METERBASE SERVICE LOCATIONS MUST FIRST BE APPROVED BY POWER DEPARTMENT.
2. IN GENERAL ALL METERBASES SHALL BE LOCATED ON THE FRONT 6' OF THE SIDE OF THE HOUSE.
3. METER HEIGHT SHALL BE A MINIMUM OF 4'6" AND A MAXIMUM OF 6' TO CENTER OF METER SOCKET.
4. METERBASE SHALL BE KEPT A MINIMUM OF 3' FROM DOORS, WINDOWS, STAIRS, GAS METERS.
5. ALL BONDING AND GROUNDING SHALL MEET CURRENT NEC AND SPANISH FORK POWER'S REQUIREMENTS. FOR EXISTING HOMES 2 GROUND RODS SHALL BE REQUIRED IN ADDITION TO ANY OTHER NEC REQUIREMENTS.
6. ALL SERVICE CONDUCTOR SIZES AND TYPES SHALL MEET CURRENT NEC.
7. IN GENERAL ONLY CONTINUOUS LENGTHS OF CONDUIT SHALL BE USED. NO JOINTS OR COUPLERS ARE PERMITTED IN SERVICE CONDUITS.
8. UNISTRUT & UNISTRUT TYPE CLAMPS SECURELY FASTENED TO THE BUILDING SHALL BE USED TO SUPPORT THE MAST.
9. OVERHEAD SERVICE DROPS SHALL MEET NEC, NESC, & CITY STANDARDS FOR CLEARANCES OVER DRIVEWAYS, ROADS, ROOFS, ETC.

DRAWN JRB	 <p>SPANISH FORK CITY 40 SOUTH MAIN STREET SPANISH FORK, UT 84660 (801) 804-4450</p>	REVISION	DATE	BY	<p align="center">STANDARD DRAWING RESIDENTIAL OVERHEAD SERVICE SIDE VIEW</p>	SCALE NONE
DESIGN JRB			03/05/08	JRB		<p align="center">STANDARD 60 OF 65</p>
CHECK KP						
DATE 03/05/08						



NOTES:

1. ALL MATERIALS TO BE SUPPLIED BY CUSTOMER EXCEPT METER.
2. 400 AMP SERVICES REQUIRE SPECIAL CARE IN DESIGN & CONSTRUCTION. REQUIREMENTS MAY INCLUDE, BUT ARE NOT LIMITED TO, INSTALLING LARGER TRANSFORMERS, JUNCTION BOXES, CONDUITS, & WIRING TO SERVE THE END CUSTOMER. CONTACT THE POWER DEPARTMENT FOR APPROVAL OF SERVICE.
3. A 400 AMP NON-FUSED UTILITY DISCONNECT SWITCH SHALL BE INSTALLED AHEAD OF THE 400 AMP METER/MAIN SERVICE DISCONNECT. THE UTILITY DISCONNECT SWITCH SHALL HAVE A SHORT-CIRCUIT CURRENT RATING EQUAL TO OR GREATER THAN THE AVAILABLE SHORT-CIRCUIT CURRENT RATING OF THE SERVICE DISCONNECTING MEANS.
4. A MINIMUM 3" DIAMETER CONDUIT IS REQUIRED FOR 400 AMP SERVICES. EXISTING SERVICE LATERAL CONDUIT MAY NOT BE LARGE ENOUGH FOR A 400 AMP SERVICE. NEW SERVICE CONDUIT MAY NEED TO BE INSTALLED TO EXISTING TRANSFORMER OR JUNCTION BOX. CONTACT POWER DEPARTMENT FOR REQUIREMENTS.
5. SERVICE CONDUCTORS SHALL MEET CURRENT NATIONAL ELECTRIC CODE.
6. BONDING & GROUNDING SHALL MEET CURRENT NEC & POWER DEPARTMENT REQUIREMENTS. A 5/8"X8' GROUND ROD SHALL BE INSTALLED FOR ALL SERVICES IN ADDITION TO OTHER NED CODE REQUIREMENTS.
7. ADDRESS MUST BE POSTED ON PROPERTY DURING ALL PHASES OF CONSTRUCTION.
8. ENOUGH WIRE SHALL BE PROVIDED TO EXTEND A MINIMUM OF 3' PAST THE TRANSFORMER OR SECONDARY PEDESTAL GROUND SLEEVE.
9. ALL RIGID METAL CONDUITS SHALL BE TAPED WITH ANTI-CORROSION TAPE. TAPE SHALL EXTEND 6" ABOVE FINISHED GRADE.
10. METERBASE/DISCONNECT SHALL BE LOCATED ON THE FRONT 6' OF THE SIDE OF THE HOUSE.
11. METER HEIGHT SHALL BE NO LESS THAN 4'6" AND NO HIGHER THAN 6' TO CENTER OF SOCKET FROM FINISHED GRADE.

DRAWN	JRB
DESIGN	JRB
CHECK	XXX
DATE	05/04/04

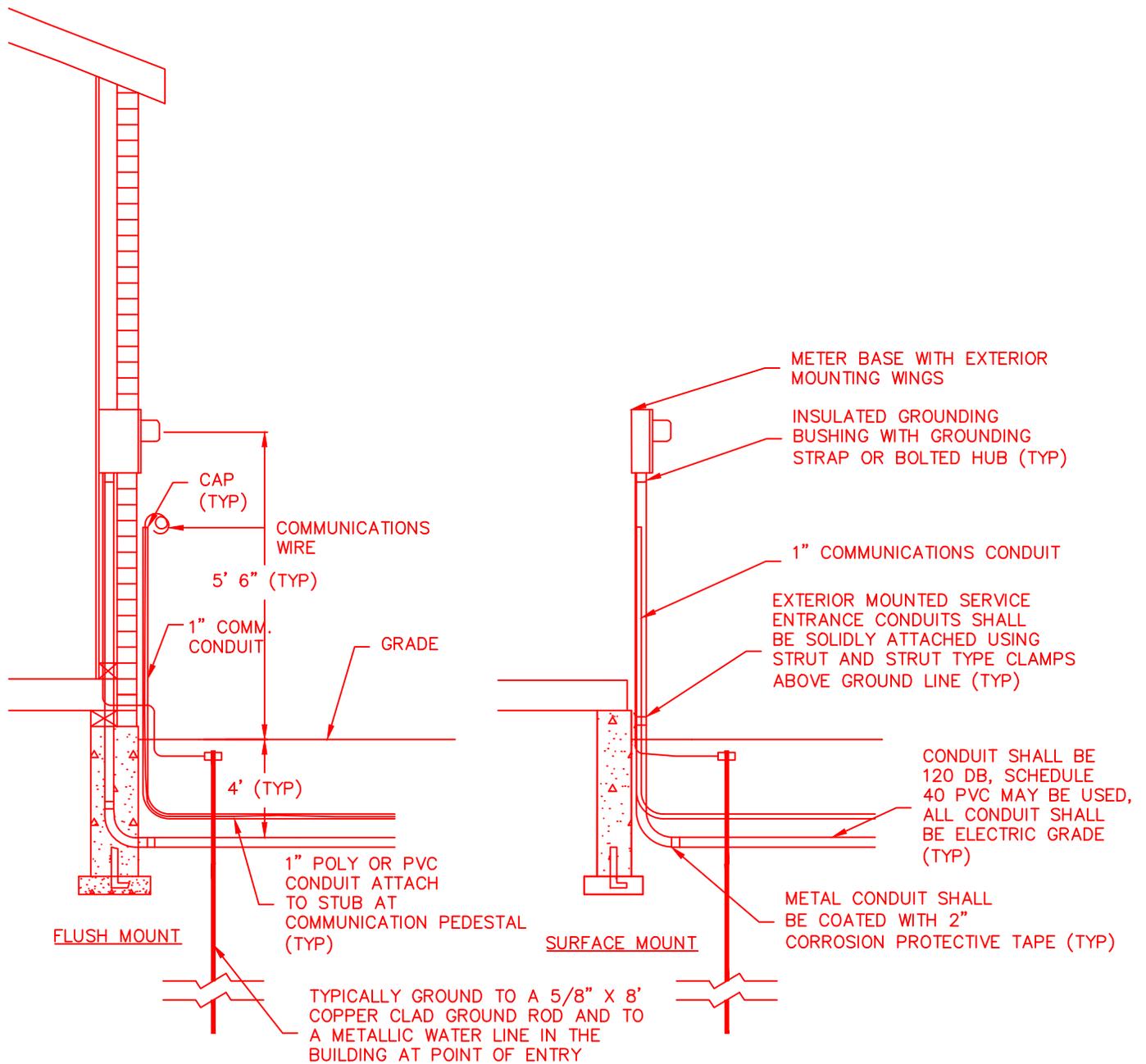


SPANISH FORK CITY
 40 SOUTH MAIN STREET
 SPANISH FORK, UT 84660
 (801) 798-5000

REVISION	DATE	BY

STANDARD DRAWING
 RESIDENTIAL UNDERGROUND SERVICE
 400 AMPS

SCALE
 NONE
 STANDARD
 61 OF 65



NOTES:

1. ALL MATERIALS TO BE FURNISHED AND INSTALLED BY CUSTOMER EXCEPT METER AND INSTALLMENT OF TRANSFORMERS.
2. ALL COMMERCIAL SELF CONTAINED METER BASES REQUIRE A METER BYPASS WHICH PERMITS CHANGING OR TESTING OF THE METER WITHOUT SERVICE INTERRUPTION.
3. METER SHALL BE LOCATED WITHIN 6' OF THE FRONT OF HOUSE.

DRAWN	DBJ
DESIGN	CMT
CHECK	RJH
DATE	09/09/04



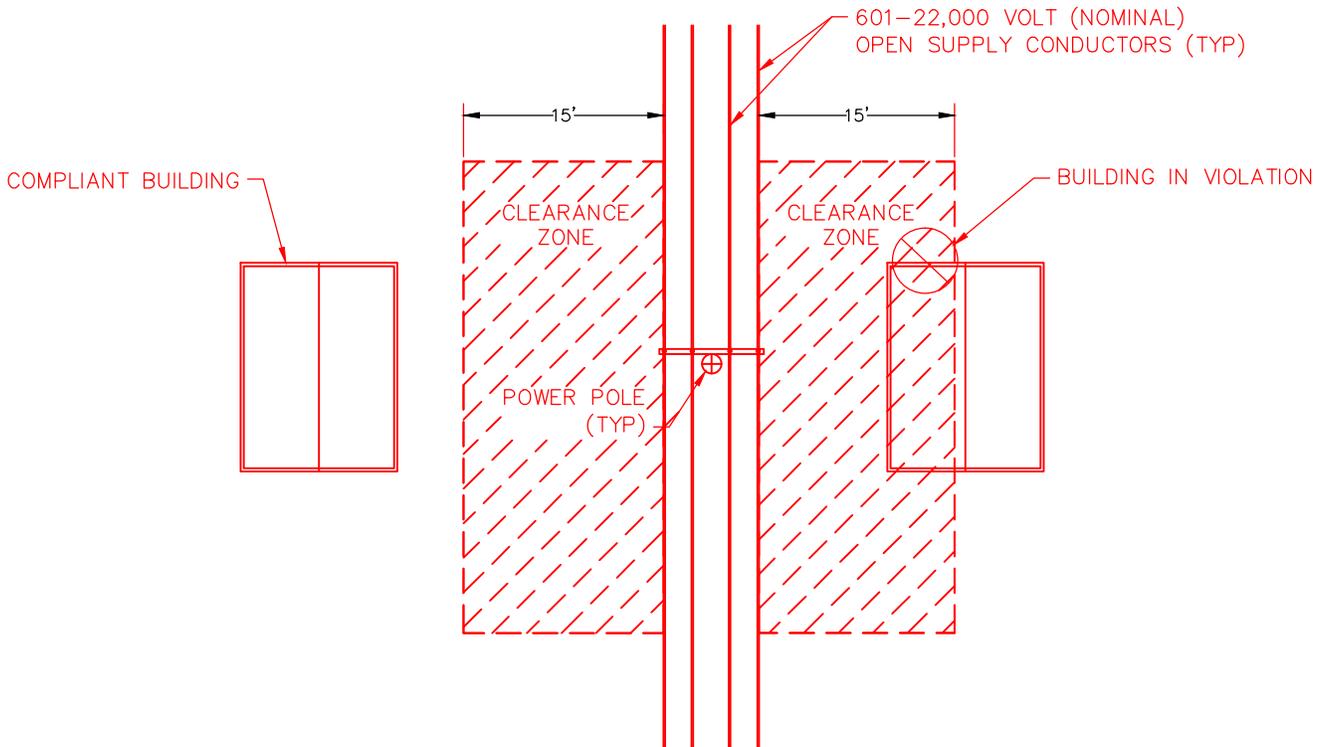
SPANISH FORK CITY
 40 SOUTH MAIN STREET
 SPANISH FORK, UT 84660
 (801) 798-5000

REVISION	DATE	BY

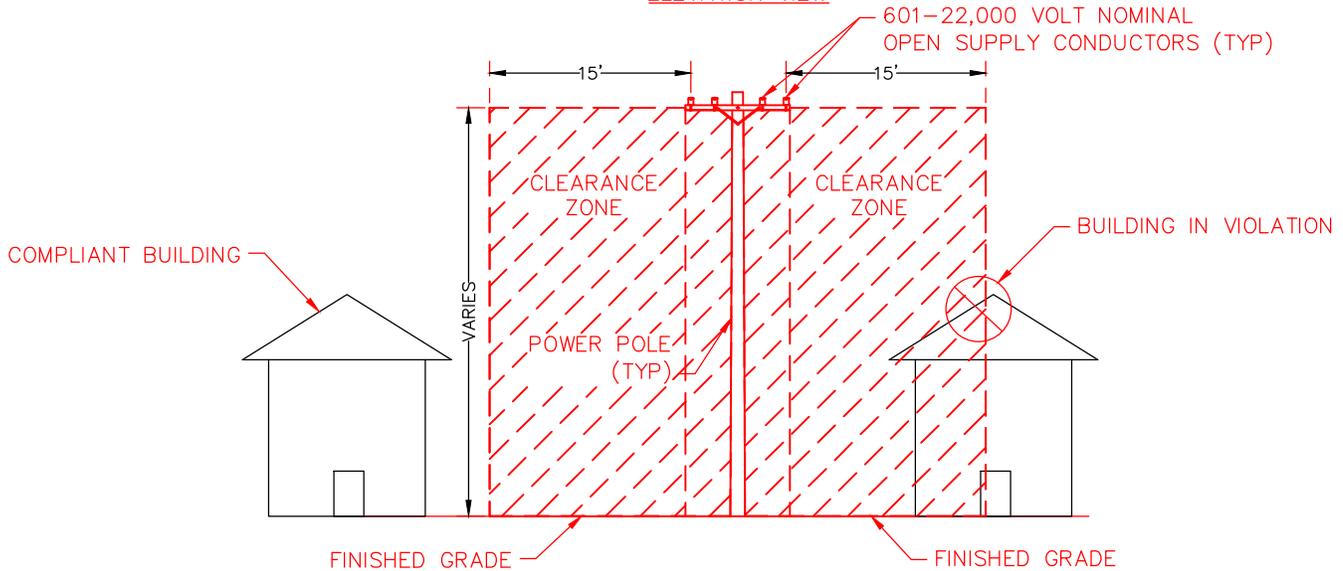
STANDARD DRAWING
 UNDERGROUND SERVICE IN
 OVERHEAD DISTRIBUTION AREA 200
 AMP OR SMALLER

SCALE NONE
STANDARD 62 OF 65

PLAN VIEW



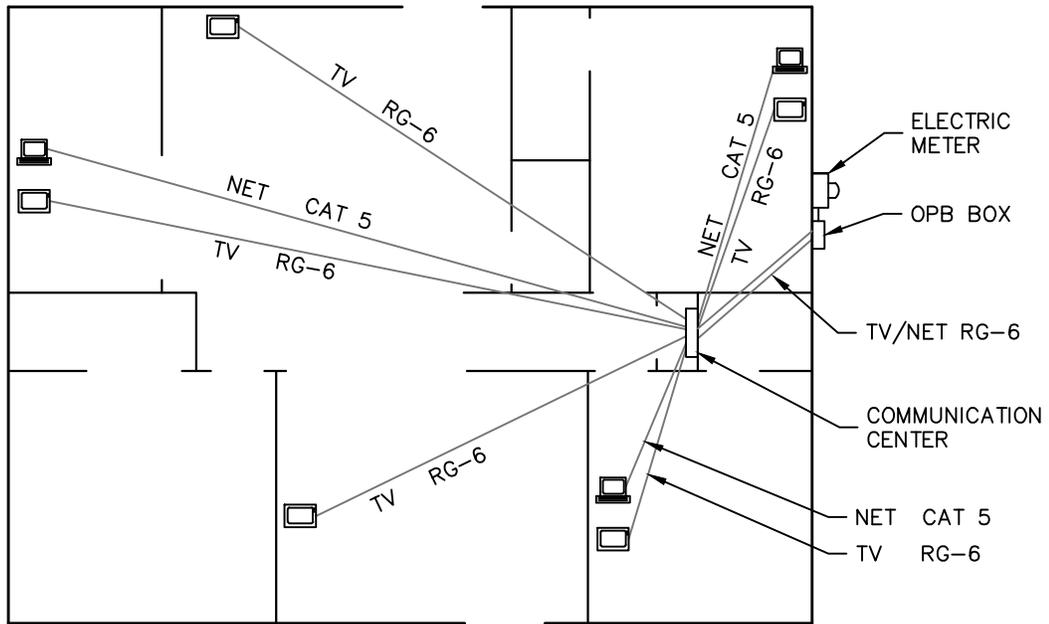
ELEVATION VIEW



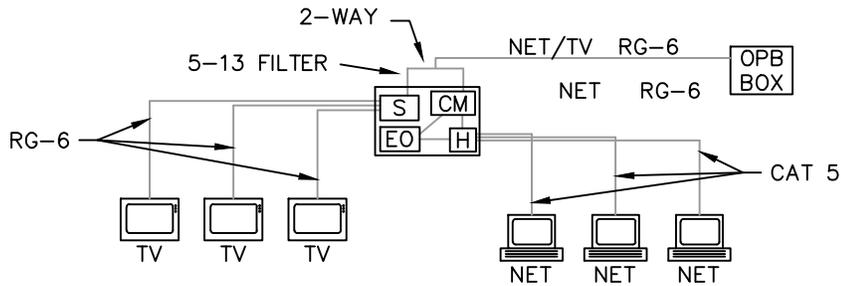
Notes:

1. NO BUILDING OR STRUCTURE SHALL BE PLACED, OR CONSTRUCTED IN THE POWER LINE CLEARANCE ZONE.
2. CLEARANCES GIVEN ARE TYPICAL AND APPLY TO OPEN SUPPLY PRIMARY CIRCUITS OPERATING AT OVER 600 VOLTS UP TO 22,000 VOLTS, AND MAY NOT APPLY TO ALL CASES OR CIRCUMSTANCES.
3. CLEARANCES DO NOT APPLY TO SECONDARY INSULATED SERVICE CIRCUITS OPERATING AT 600 VOLTS OR LESS.
4. TYPICAL CLEARANCES INCLUDE THE COMPLETE VERTICAL & HORIZONTAL SPACE AROUND POWERLINES FROM THE OUTSIDE CONDUCTOR TO ANY BUILDING, SIGN, OR STRUCTURE.
5. TYPICAL CLEARANCES FOR 12KV PRIMARY OVERHEAD DISTRIBUTION CIRCUITS ARE 15' FROM THE OUTSIDE CONDUCTOR IN ANY DIRECTION FROM ANY BUILDING, SIGN, OR STRUCTURE
6. TYPICAL CLEARANCES FOR 46KV PRIMARY OVERHEAD TRANSMISSION CIRCUITS ARE 30' FROM THE OUTSIDE CONDUCTOR IN ANY DIRECTION FROM ANY BUILDING, SIGN, OR STRUCTURE.
7. SPECIAL APPLICATIONS, HIGHER VOLTAGES, RAILROAD TRACKS, SWIMMING POOLS, AND OPEN WATER MAY RESULT IN ADDITIONAL CLEARANCES AND SHALL BE APPROVED BY POWER DEPARTMENT.

DRAWN	JRB	 <p>SPANISH FORK CITY 40 SOUTH MAIN STREET SPANISH FORK, UT 84660 (801) 804-4450</p>	REVISION	DATE	BY	<p>STANDARD DRAWING OVERHEAD POWERLINE CLEARANCES OVER 600 VOLTS TO 22,000 VOLTS</p>	SCALE NONE
DESIGN	JRB						STANDARD
CHECK	KP						
DATE	2/25/08						



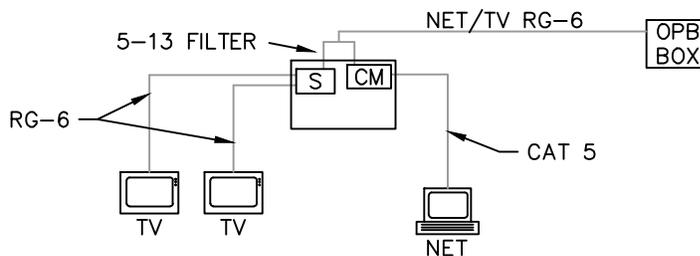
RECOMMENDED WIRING METHOD



LEGEND:

- S = SPLITTER
- H = HUB
- CM = CABLE MODEM
- OPB = ON PREMISE BOX
- RG-6 = COAX CABLE STANDARD 60% BRAIDED
- CAT 5 = TWISTED PAIR CABLE
- EO = ELECTRIC OUTLET

ALTERNATE WIRING METHOD

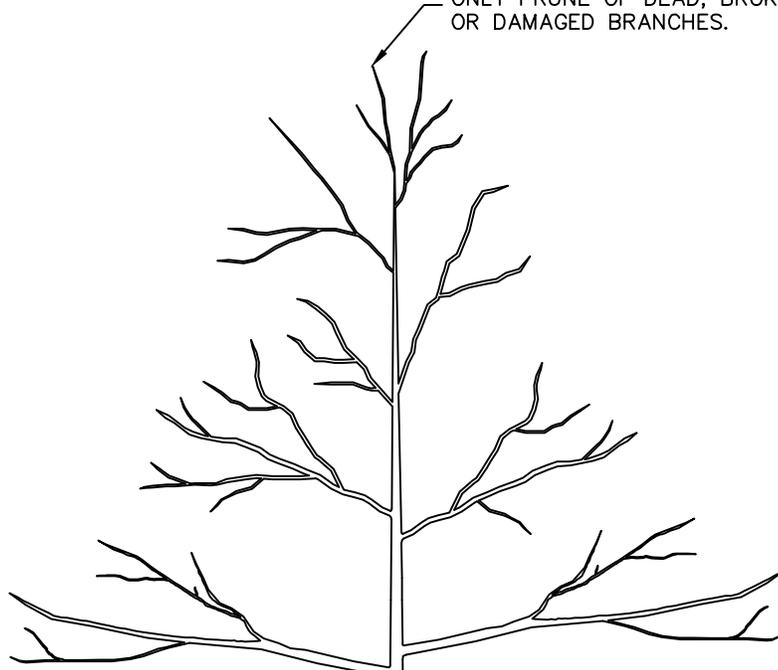


NOTES:

1. USE CATEGORY 5 OR OR HIGHER RATED WIRE MEETING NATIONAL ELECTRIC CODES (NEC).
2. USE ONLY RG-6 COAXIAL CABLE MEETING NEC REQUIREMENTS.
3. FOR RESIDENTIAL SINGLE FAMILY DWELLINGS INSTALL 1" SERVICE CONDUITS TO HOUSE DEMARICATION POINT.
4. FOR MULTI-FAMILY DWELLING UNITS TYPICALLY INSTALL A 2" SERVICE CONDUIT TO DEMARICATION POINT.
5. FOR COMMERCIAL TYPE DEVELOPMENTS, BUILDINGS, INSTALL A 2" SERVICE CONDUIT TO DEMARICATION POINT OR COMMUNICATIONS ROOM.

DRAWN	JFJ	 <p>SPANISH FORK CITY 40 SOUTH MAIN STREET SPANISH FORK, UT 84660 (801) 804-4500</p>	REVISION	DATE	BY	<p>STANDARD DRAWING RECOMMENDED HOME COMMUNICATION WIRING</p>	SCALE
DESIGN	CMT						NONE
CHECK	RJH						STANDARD
DATE	05/04/04						64 OF 65

DO NOT CUT CENTRAL LEADER.
ONLY PRUNE OF DEAD, BROKEN
OR DAMAGED BRANCHES.



STAKE ONLY WHEN NECESSARY. USE
SOFT FASTENING MATERIAL SUCH AS
WIDE FABRIC STRAPS AROUND TREE.

PLACE ROOT-BALL AT SOIL GRADE
AND ADD 2 TO 3 IN. OF WOOD CHIP
MULCH. ALLOW SPACE BETWEEN
WOOD CHIP & TRUNK

CUT AND REMOVE BURLAP AND
BINDINGS FROM AT LEAST
UPPER 2/3 OF ROOT-BALL

BACKFILL WITH PRE-EXISTING
SOIL. DO NOT ADD FERTILIZER
OR GRAVEL TO HOLE.

NOTES:

1. WOOD CHIPS SHALL BE REMOVED FROM DIRECTLY TOUCHING TRUNK.
2. DEPTH OF HOLE SHOULD BE NO DEEPER THAN THE ROOT-BALL.
3. DIAMETER OF HOLE SHOULD BE THREE TIMES THAT OF THE ROOT-BALL.

DRAWN	JFJ
DESIGN	CMT
CHECK	RJH
DATE	8/11/11



SPANISH FORK CITY
40 SOUTH MAIN STREET
SPANISH FORK, UT 84660
(801) 798-5000

REVISION	DATE	BY

STANDARD DRAWING
TREE

SCALE
1"=3'
STANDARD
65 OF 65

(5.00)

Tentative Minutes
Spanish Fork City Council Meeting
August 2, 2011

Elected Officials Present: Mayor G. Wayne Andersen, Councilmembers Steve Leifson, Rod Dart, Richard Davis, Jens Nielson, Keir Scoubes.

Staff Present: Junior Baker, City Attorney; Dave Oyler, City Manager; Seth Perrins, Assistant City Manager; Chris Thompson, Public Works Director; Kent Clark, City Recorder/Finance Director; Dee Rosenbaum, Public Safety Director; Dave Anderson, Community Development Director; Dale Robinson, Parks & Recreation Director; Angie Warner, Deputy Recorder.

Citizens Present: Aaron Stern, Josh Stern, Matt Packard, Chris Salisbury, Wayne Wengreen, Nathan Wengreen, Tanner Loftus, Jenny Loftus, Cary Robarge, David Grotegut, Brad Podany, Linda Podany, Cary Hanks, Brandon Gordon.

CALL TO ORDER, PLEDGE, RECOGNITION:

Mayor Andersen called the meeting to order at 6:00 p.m.

Tanner Loftus led in the pledge of allegiance.

PUBLIC COMMENTS:

Doug Ford commented on the recent flooding along the river. Mr. Ford commended the City for their proactive approach to protecting the many properties. Mr. Ford said he put sandbags in his yard and it still flooded but the water did not reach the home. Mr. Ford thanked the neighbors and volunteers that helped.

Mayor Andersen thanked Doug Ford for all he does for the community.

Brad Podany asked about traffic enforcement on 1100 East in the county. There are many speeders along this road and a lot of citizens walk on this road. Mr. Podany was almost hit while walking his horse, so they moved to walking on the river trail. Mr. Podany asked why the City posted signs along the river trail that you cannot have horses on the trail?

Dee Rosenbaum recognized that the road Mr. Podany is talking about is referred to as Popler Lane and is a county road. Spanish Fork City has no jurisdiction and no authority to do anything on that road. Mr. Rosenbaum directed Mr. Podany to contact the Sheriff's Office or the County Commission.

Dale Robinson explained that the City does maintain the trail. Mr. Robinson said that in the master plan there is an equestrian trail in the plan in the future.

Mayor Andersen said he will voice this concern to the County Commissioners this Thursday.

Cary Hanks, Director of the Spanish Fork/Salem Area Chamber of Commerce, announced that the Farmer's Market started last Saturday. The turn out was great. It will run every Saturday morning at 8:00 am until November.

49 Chris Thompson presented two projects that are already included in the budget. The first one is
50 to re-asphalt the parking lot in Canyon View Park. The second is to asphalt a trail by
51 Powerhouse Road. We have negotiated with LEI to do a design for this. Staff proposes that the
52 Mayor sign the two projects presented and the signed contract will be brought back to City
53 Council for ratification. Mr. Thompson also presented a change order for our water utility project.
54 This is to do extra trench repair on a road that is failing.

55
56 City Council agreed to move forward.

57
58 Aaron Stern commented that he opposes the ordinance that is on the agenda tonight regarding
59 temporary signage. He suggested that the item be tabled until after the upcoming election. Mr.
60 Stern feels that Councilman Dart & Davis should recuse themselves from voting on the
61 ordinance.

62 63 COUNCIL COMMENTS:

64 Councilman Scoubes commented on the wonderful Fiesta Days. There was great support from
65 community and he thanked all the staff & volunteers. Councilman Scoubes announced that the
66 Harvest Moon Hoorah will be on October 8th.

67
68 Councilman Dart said that he attended the Library Board meeting. The numbers for participation
69 are great for the summer reading programs. Councilman Dart thanked the staff at the library.
70 He said Fiesta Days was great. He attended the production of Hairspray and it was a lot of fun.

71
72 Councilman Leifson agreed with the comments about Fiesta Days. He thanked the committees,
73 volunteers and staff. At UMPA meeting last week, the power companies are running lean but still
74 running well. At SUVPS meeting, the new substation at Dry Creek should be up and running
75 soon. (*Councilman Leifson said Crab Creek, but meant Dry Creek.*)

76
77 Councilman Davis said Fiesta Days ran really well. He thanked the committee, staff and
78 volunteers. The committee is already preparing for 2012.

79
80 Mayor Andersen said that the Fiesta Days Rodeo has sold out for the last 20 performances in a
81 row. He expressed how great that is, and thanked the committee and the Diamond Fork Riding
82 Club.

83 84 SPANISH FORK 101:

85 Dave Anderson spoke about the process of what to do if citizens want to build a fence, shed,
86 carport, chicken coop, etc.

87 88 CONSENT ITEMS:

- 89 a. Minutes of Spanish Fork City Council Meeting – June 19, 2011
90 b. White Rail Development Agreement
91 c. Mountainland Association of Governments Aging Services Contract
92 d. Authorize Sale of Surplus Truck to Levan Town
93 e. Lease of Vehicle for Spanish Fork City Task Force Officer

94
95 Councilman Leifson made a **motion** to **approve** the consent items.

96 Councilman Dart **seconded** and the motion **passed** all in favor.

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NEW BUSINESS:

Ordinance #10-11 Waiving the Solicitor Fee for Charitable Organizations

Junior Baker stated that this item was discussed a couple weeks ago. The City had a request to waive the Solicitor License fee for charitable organizations. Mr. Baker made the proposed changes to section 5.04.110(F) of the Spanish Fork Municipal Code.

Spanish Fork Municipal Code §5.04.110(F) is hereby amended as follows:

5.04.110. Fee Schedule

There is levied upon the business, location, trade, or calling of every person engaged in business in the city an annual license fee based upon the type of class of said business as follows:

F. The amount for a business license for a canvasser or a solicitor shall be \$100.00 per calendar year, unless the proceeds from the solicitation are only used for the benefit of a charitable organization with substantial ties to the community. Such institutions shall include, but not be limited to churches, scouting organizations, schools, service clubs, and similar charitable organizations. For such charitable organizations, the license fee shall be waived. No canvasser or solicitor license shall be valid during the period of the Fiesta Days celebration.

Councilman Nielson made a **motion** to **approve** the Ordinance #10-11 Waiving the Solicitor Fee for Charitable Organizations.

Councilman Scoubes **seconded** and the motion **passed** all in favor with a roll call vote.

Ordinance #11-11 Amending the Temporary Sign Requirements for Campaign Signs

Junior Baker said this item was discussed at the last meeting and is presented tonight with the proposed changes to section 5.36.050 of the Spanish Fork City Municipal Code.

Spanish Fork City Municipal Code §5.36.050(8) is hereby amended to read as follows:

5.36.050. Permitted Temporary Signs.

8. Campaign Signs.

Campaign signs may be displayed, in accordance with the following requirements, as soon as a candidate files for office, and must be removed within seven days following the election:

- a. In agricultural, residential, and residence office zoning districts, campaign signs shall have a maximum area of six square feet and a maximum height of five feet.*
- b. In commercial office, commercial, and industrial zoning districts, campaign signs shall have a maximum area of thirty-two (32) square feet and a maximum height of eight feet.*
- c. Repealed.*
- d~e[No change].*

Mayor Andersen read emails from candidates Marvin Wharton and Matt McEwen saying that they oppose the ordinance change regarding signage.

Councilman Nielson asked why Councilman Davis and Dart would need to recuse themselves from voting on this ordinance.

145 Junior Baker said there is no advantage or disadvantage; from a legal prospective he does not
146 see a problem.
147
148 Councilman Nielson & Scoubes would prefer the sign locations stay.
149
150 Discussion about public forum locations.
151
152 Councilman Leifson asked if the City is safer to just take away the locations.
153
154 Junior Baker replied yes.
155
156 Councilman Davis commented that Mapleton got sued over signs.
157
158 Mayor Andersen agrees with the ordinance to remove the eight locations.
159
160 Councilman Scoubes asked why this decision is being based on if the City would get sued or not.
161 Councilman Scoubes does not agree with the candidates voting on this ordinance.
162
163 Councilman Leifson does not see a problem with Councilman Davis & Dart voting on this
164 ordinance.
165
166 Mayor Andersen said if we keep the eight locations it doesn't change the situation of the public
167 forum.
168
169 Councilman Davis said he does not want to take the chance of spending the citizen's money on a
170 lawsuit. Councilman Davis advised the candidates to go out and campaign, the signs don't make
171 the difference you do.
172
173 Councilman Scoubes commented that the signs help with public awareness of the candidates and
174 elections.
175
176 Councilman Leifson made a **motion to approve** the Ordinance #11-11 Amending the Temporary
177 Sign Requirements for Campaign Signs.
178 Councilman Davis **seconded** and the motion **passed** with a 3-2 roll call vote.
179 Councilman Dart - Abstain
180 Councilman Davis - Aye
181 Councilman Leifson - Aye
182 Councilman Nielson - Nay
183 Councilman Scoubes - Nay
184 Mayor Andersen - Aye
185
186 **Bowen, Collins & Associates, Inc. Master Agreement for Professional Services**
187 Chris Thompson stated that this agreement with Bowen, Collins & Associates lists the basic
188 information that would be in most agreements. This will be a time benefit so the City does not
189 have to bring back complex agreements. If Council approves this agreement staff will have task
190 orders for the changes. It is a three year contract with automatic one year renewals, but the City
191 may terminate at any time with or without cause.
192

193 Councilman Dart made a **motion** to **approve** the Bowen, Collins & Associates, Inc. Master
194 Agreement for Professional Services.
195 Councilman Nielson **seconded** and the motion **passed** all in favor.

196

197 **Crab Creek Trunkline Phase 2**

198 Chris Thompson said this entails a Master Agreement for professional services with Hansen,
199 Allen and Luce. (It is the same form as the Bowen & Collins agreement that was just approved.)
200 This is a task order for the Crab Creek Trunkline that comes from the mouth of the canyon down
201 to Canyon Road. Staff has reviewed the proposals and has recommended the bid be awarded to
202 Hansen, Allen, & Luce.

203

204 Councilman Davis made a **motion** to **approve** the Crab Creek Trunkline Phase 2 Task Order #1 -
205 #34812100 awarded to Hansen, Allen & Luce.

206 Councilman Scoubes **seconded** and the motion **passed** all in favor.

207

208 **Central Bank & Salisbury Homes – Extending the entitlements on the Maple Mountain Master** 209 **Planned Community – Reducing the Preliminary Plat review fees**

210 Junior Baker reviewed the history of this item. Central Bank & Salisbury Homes are here tonight
211 to ask for another extension.

212

213 Chris Salisbury explained what has been going on for the past 6 months. For the last 45 days
214 Salisbury has been communicating with the City and trying to get a developers agreement done.
215 One main problem has been that there are no water rights. Mr. Salisbury also said that he does
216 not agree that the City is charging the full fee for a preliminary plat that has already been looked
217 at. Why should Salisbury pay again for a structure that is already built.

218

219 Junior Baker said the fees have to correspond with the City's expenses.

220

221 Chris Thompson agrees with Salisbury on the fees. We feel that our fees are accurate since we
222 have looked and reviewed this plat before. Mr. Thompson reviewed what staff does to redesign
223 the plat.

224

225 Junior Baker reminded Council this is the second extension for Salisbury. Council can give up to
226 a six (6) month extension.

227

228 Matt Packard with Central Bank said this is not a normal case and the market is horrible for
229 everyone.

230

231 Discussion about a time frame for the extension.

232

233 Junior Baker reminded the Council that this is a proposal. If it goes forward from here it has to
234 go through the process of Development Review Committee, Planning Commission & City
235 Council.

236

237 Discussion about the fees for the preliminary plat.

238

239 David Grotegut said he lives right by the development and owns part of the land included in the
240 development. He has no desire to be included anymore.

241

242 Chris Salisbury said Mr. Grotegut & the Haycock's are included. Mr. Salisbury thought that Mr.
243 Grotegut had been contacted.

244
245 Councilman Leifson asked what happens if the Grotegut's & Haycock's drop out.
246
247 Junior Baker reviewed that the two property owners have to sign off on the agreement. If they do
248 not sign, the whole project is dead.
249
250 Mr. Grotegut stated that if they want the frontage, Salisbury would have to purchase it from him.
251
252 Councilman Davis asked when the plat expires.
253
254 Chris Salisbury said 2 weeks. Mr. Salisbury asked Mr. Grotegut if they could sit down and talk
255 through this.
256
257 Councilman Leifson made a **motion** to approve a six (6) month extension for the Maple Mountain
258 Master Planned Community and to charge the plat review fees based on actual time spent
259 reviewing the plat.
260 Councilman Nielson **seconded** and the motion **passed** all in favor.
261
262 **ADJOURN:**
263 Councilman Dart made a **motion to adjourn**.
264 Councilman Leifson **seconded** and the motion **passed** all in favor at 8:19 p.m.
265
266 **ADOPTED:**
267
268

Angie Warner, Deputy Recorder



Memo

To: Mayor and City Council
From: Chris Thompson, Public Works Director/City Engineer
Date: August 11, 2011
Re: Master Agreement for Professional Services, Horrocks Engineering

Staff Report

It is our intent to have a master agreement for professional services on file for all consultants who do work for the city. Horrocks Engineering has been providing transportation engineering, modeling and signal consulting to the city since completing our transportation masterplan a couple years ago. We recommend that the city council approve this master agreement for professional services with Horrocks Engineering.

Attached: agreement



MASTER AGREEMENT FOR PROFESSIONAL SERVICES
Horrocks Engineers

This AGREEMENT, dated __August 2, 2011_____, is made and entered into between Spanish Fork City (herein called OWNER) and Horrocks Engineers, a Utah Corporation (herein called ENGINEER). From time to time OWNER may request that ENGINEER provide professional services for Specific Projects. Each work engagement will be documented by an individual Task Order. This AGREEMENT sets forth the general terms and conditions that will apply to all Task Orders duly executed under this AGREEMENT.

In consideration of the mutual promises herein contained, ENGINEER and OWNER agree as follows:

1. TERM AND AUTHORIZATION TO PROCEED

- A. This Agreement shall be effective and applicable to Task Orders issued hereunder for three (3) years from the Effective Date of the Agreement and, thereafter, shall automatically be renewed, at the end of this term and each renewal term, for an additional one year term until either party terminates the Agreement as set forth in paragraph 6(C).
- B. Execution of individual Task Orders by OWNER will be authorization for the ENGINEER to proceed with the authorized work associated with the Specific Projects (PROJECT), pursuant to the terms and conditions of this AGREEMENT.

2. ENGINEER'S SERVICES

- A. The ENGINEER agrees to provide engineering services to the OWNER on an as needed basis. The scope of services, period of performance, and basis of ENGINEER's compensation are to be defined in individual Task Orders. Each duly executed Task Order shall be subject to the terms and conditions of this AGREEMENT. A standard task order form is included as Attachment A. The ENGINEER will perform the defined services in a professional manner using the degree of care and skill that is normally employed by professional engineers or consultants on similar projects of equal complexity.
- B. The relationship of the ENGINEER to the OWNER is that of an independent contractor and nothing in this AGREEMENT or the attachments hereto, creates any other relationship. As an independent contractor, the ENGINEER shall have the sole responsibility for paying taxes, workers compensation, employee benefits (if any), and all similar obligations.

- C. This AGREEMENT is not a commitment by Owner to Engineer to issue any Task Orders.

3. COMPENSATION AND PAYMENT

- A. OWNER and ENGINEER shall agree on the basis of compensation for each Task Order. If hourly rates are to be used as the basis of compensation, those rates will be defined in each Task Order. Hourly rates are updated on March 1st of each calendar year by the ENGINEER. Updated hourly rates will be used for all task orders. Additionally, ENGINEER will be reimbursed for costs and expenses incurred in performance of the PROJECT as per the current rate schedule.
- B. Invoicing will occur following the last day of each month. Payments shall be due within 30 days of receipt of the invoice.
- C. A service charge of 10 percent will be applied to direct expenses incurred in performance of the PROJECT that include, but may not be limited to meals, lodging, and subcontractor services and outside services. All sales, use, value added, business transfer, gross receipts, or other similar taxes will be reimbursed to ENGINEER.
- D. An interest rate of 1.5% per month will be applied to all invoices that are not paid in full after 30 days following the invoice date. Payments will be applied to the outstanding interest first and then to the principal.
- E. The ENGINEER may discontinue work on the PROJECT by issuing the OWNER a written seven-day notice if full payment for an invoice is not received within 60 days of the date of the invoice. Suspension of work will continue until full payment is made for all outstanding invoices including interest. The ENGINEER accepts no liability for damages or delays that result from its suspension of work. The OWNER may not use information or work product provided by the ENGINEER until full payment is made including applicable interest.

4. INSURANCE

- A. The ENGINEER will maintain insurance coverage throughout the term of the AGREEMENT. Insurance coverage will include:
 - 1) Worker's Compensation
 - State Statutory
 - Employer's Liability \$100,000
 - 2) Comprehensive General Liability

Bodily Injury and Property Damage	\$1,000,000
Combined Single Limit	\$1,000,000
3) Automobile Liability	
Combined Single Limit	\$1,000,000
4) Professional Liability	\$2,000,000

5. LIMITATION OF LIABILITY

- A. The ENGINEER shall not be liable for damages or delays resulting from actions or inaction of a third party that is not under the direct control of the ENGINEER, such as government agencies that have review and permit authority.
- B. The OWNER shall indemnify and hold harmless the ENGINEER, its subcontractors, agents and employees for all liability, other than that caused solely by the negligent acts, errors, or omissions of the ENGINEER.
- C. The ENGINEER shall indemnify and hold harmless the OWNER, its agents, representatives, consultants and employees for all liability, other than that caused solely by the negligent acts, errors, or omissions of the OWNER.
- D. If the negligence or willful misconduct or both ENGINEER and OWNER (or a person identified above for whom each is liable) is a cause of such damage or injury, the loss, cost, or expense shall be shared between ENGINEER and OWNER in proportion to their relative degrees of negligence or willful misconduct and the right of indemnity shall apply for such portion.
- E. The OWNER shall defend, indemnify and hold harmless the ENGINEER, its subcontractors, agents and employees for all liability resulting from construction of the PROJECT, if the ENGINEER is not retained to perform construction phase services on the PROJECT.
- F. To the fullest extent permitted by law, and notwithstanding any other provision of this AGREEMENT, the total liability, in the aggregate, of the ENGINEER and the ENGINEER's officers, directors, partners, employees and subconsultants, and any of them, to OWNER, for any and all claims, losses, costs, or damages, including attorneys' fees and costs and expert-witness fees and costs of any nature whatsoever or claims expenses resulting from or in any way related to a Specific Project or Task Order, or this AGREEMENT, from any cause or causes shall not exceed the total compensation received by the ENGINEER under this AGREEMENT, or

the total amount of \$1,000,000, whichever is greater. It is intended that this limitation apply to any and all liability or cause of action however alleged or arising, unless otherwise prohibited by law.

- G. The ENGINEER is not responsible for delays or damages caused by acts of God such as floods or earthquakes, or other circumstances beyond control of ENGINEER.
- H. The ENGINEER, its subcontractors, agents and employees shall not be liable for consequential damages or indirect liability from a third party. The OWNER will defend, indemnify and hold harmless the ENGINEER, its subcontractors and agents from such an occurrence.

6. TERMINATION

- A. This AGREEMENT may be terminated by either party in the event that the other party has not performed any material covenant or has otherwise breached any material term of this AGREEMENT (i) upon receipt of written notice thereof if the nonperformance or breach is incapable of cure, or (ii) upon the expiration of ten (10) calendar days (or such additional cure period as the non-defaulting party may authorize) after receipt of written notice thereof if the nonperformance or breach is capable of cure and has not been cured.
- B. Upon termination, ENGINEER is entitled to full compensation as computed under this AGREEMENT for the work completed
- C. Either party may terminate this AGREEMENT without cause at any time upon thirty (30) days prior written notice to the other party.

7. ASSIGNMENT

This AGREEMENT shall be binding on the heirs, successors and assignees of the parties. This AGREEMENT may not be assigned, transferred, conveyed, or encumbered, whether voluntarily or by operation of law, by either party without the prior written consent of the other party. Unauthorized assignment is void and nonbinding.

8. OPINION OF PROBABLE CONSTRUCTION COST

Opinions of probable construction cost prepared by the ENGINEER are based on its experience with past projects of similar construction. It is understood that the ENGINEER has no control over economical factors or unknown conditions that may have a significant impact on actual PROJECT cost. The ENGINEER does not guarantee its cost estimates and accepts no liability for problems created by the difference in actual costs and opinions of probable construction cost.

9. DOCUMENTS

Contract documents, calculations, electronic information and survey information created by the ENGINEER as “instruments of service” are the property of the ENGINEER. OWNER’s use of the documents and other “instruments of service” on any other project is prohibited and the ENGINEER accepts no liability for such action.

10. CONSTRUCTION PHASE SERVICES

- A. The ENGINEER has based its cost to provide construction phase services, on the ENGINEER, its employees, subcontractors and agents being named as additional insured under any construction contractor(s) (herein CONTRACTOR) General Liability and Builder’s All Risk Insurance. The OWNER shall include in any contract with the CONTRACTOR a statement to defend, indemnify and hold harmless the ENGINEER; its employees, subcontractors and agents for any and all action resulting from construction activity.
- B. Observations performed by the ENGINEER or its agents are intended to assist the OWNER to obtain the best project possible and not to assume the CONTRACTOR’s responsibility to comply with the requirements of any contract documents. The parties to this AGREEMENT recognize that the CONTRACTOR has sole responsibility to ensure that any contract requirements are met. The CONTRACTOR is responsible for all methods used to complete the PROJECT and is responsible to follow all applicable safety procedures.
- C. “Record” documents prepared by the ENGINEER are based on information supplied by the CONTRACTOR and its agents and are only as accurate as the information provided by the CONTRACTOR. The ENGINEER does not assume responsibility for the accuracy of the “record” documents.

11. ADHERENCE TO APPLICABLE LAWS

- A. The laws of the State of Utah shall govern all aspects of this AGREEMENT.
- B. The ENGINEER shall comply with the applicable requirements of the Equal Employment Opportunity Laws, Title VI of the Civil Rights Act of 1964, as amended, and with the provisions contained in 49 CFR 21 through Appendix C and 23 CFR 710.450(b), and the Fair Labor Standards Act.

12. HAZARDOUS WASTE

OWNER will indemnify ENGINEER from all claims, damages, losses, and costs, including attorney's fees, arising out of or relating to the presence, discharge, release, or escape of hazardous substances or contaminants from the PROJECT. OWNER recognizes that ENGINEER assumes no risk and/or liability for waste or the waste site.

13. ATTORNEY'S FEES

In the event any action or proceeding is brought by any party against any other party under this AGREEMENT, the prevailing party shall be entitled to recover attorney's fees and costs in such amount as the court may adjudge reasonable.

14. SEVERABILITY

The provisions of this AGREEMENT are severable, and should any provision hereof be void, overly broad or unenforceable, such void, overly broad or unenforceable provision shall not affect any other portion or provision of this AGREEMENT.

15. WAIVER

Any waiver by any party hereto of any breach of any kind or character whatsoever by any other party, whether such waiver be direct or implied, shall not be construed as a continuing waiver of or consent to any subsequent breach of this AGREEMENT on the part of the other party.

16. NOTICES

All notices, demands, and requests required or permitted to be given hereunder shall be in writing and shall be deemed duly given if delivered or if mailed by registered or certified mail, postage prepaid, addressed to the following:

ENGINEER: John A. Dorny, P.E.
 Horrocks Engineers
 2162 West Grove Parkway, Suite 400
 Pleasant Grove, UT 84062

OWNER: Chris Thompson, P.E.
 Public Works Director/City Engineer
 Spanish Fork City
 40 South Main Street
 Spanish Fork, Utah 84660

Either party shall have the right to specify in writing another name or address to which subsequent notices to such party shall be given. Any notice given hereunder shall be deemed to have been given as of the date delivered or mailed to the other party.

17. ATTACHMENTS

The following attachments are included as part of the AGREEMENT:

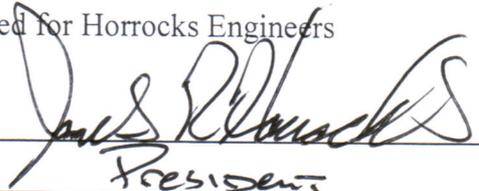
Attachment A – Standard Task Order Form
Task Orders, as awarded.

This AGREEMENT constitutes the entire understanding and AGREEMENT between the parties and supersedes all prior AGREEMENTS and understandings, whether written or oral, and may only be changed by written amendment executed by both parties.

Approved for OWNER

By _____
Title _____
Date _____

Accepted for Horrocks Engineers

By  _____
Title President
Date 8/3/11



Memo

To: Mayor and City Council
From: Chris Thompson, Public Works Director/City Engineer
Date: August 11, 2011
Re: Agreement for Professional Services, LEI Engineering

Staff Report

It is our intent to have a master agreement for professional services on file for all consultants who do work for the city. LEI Engineering has provided survey, design and study services for the city for the past several years. They are a local company which can respond quickly to work that may be needed immediately. We recommend that the city council approve this master agreement for professional services with LEI Engineering.

Attached: agreement



**MASTER AGREEMENT FOR PROFESSIONAL SERVICES
LEI CONSULTING ENGINEERS AND SURVEYORS, Inc.**

This AGREEMENT, dated August 2, 2011, is made and entered into between Spanish Fork City (herein called OWNER) and LEI Consulting Engineers and Surveyors, Inc. (herein called ENGINEER). From time to time OWNER may request that ENGINEER provide professional services for Specific Projects. Each work engagement will be documented by an individual Task Order. This AGREEMENT sets forth the general terms and conditions that will apply to all Task Orders duly executed under this AGREEMENT.

In consideration of the mutual promises herein contained, ENGINEER and OWNER agree as follows:

1. TERM AND AUTHORIZATION TO PROCEED

- A. This Agreement shall be effective and applicable to Task Orders issued hereunder for three (3) years from the Effective Date of the Agreement and, thereafter, shall automatically be renewed, at the end of this term and each renewal term, for an additional one year term until either party terminates the Agreement as set forth in paragraph 6(C).
- B. Execution of individual Task Orders by OWNER will be authorization for the ENGINEER to proceed with the authorized work associated with the Specific Projects (PROJECT), pursuant to the terms and conditions of this AGREEMENT.

2. ENGINEER'S SERVICES

- A. The ENGINEER agrees to provide engineering services to the OWNER on an as needed basis. The scope of services, period of performance, and basis of ENGINEER's compensation are to be defined in individual Task Orders. Each duly executed Task Order shall be subject to the terms and conditions of this AGREEMENT. A standard task order form is included as Attachment A. The ENGINEER will perform the defined services in a professional manner using the degree of care and skill that is normally employed by professional engineers or consultants on similar projects of equal complexity.
- B. The relationship of the ENGINEER to the OWNER is that of an independent contractor and nothing in this AGREEMENT or the attachments hereto, creates any other relationship. As an independent contractor, the ENGINEER shall have the sole responsibility for paying taxes, workers compensation, employee benefits (if any), and all similar obligations.

- C. This AGREEMENT is not a commitment by Owner to Engineer to issue any Task Orders.

3. COMPENSATION AND PAYMENT

- A. OWNER and ENGINEER shall agree on the basis of compensation for each Task Order. If hourly rates are to be used as the basis of compensation, those rates will be defined in each Task Order. Hourly rates are updated on January 1 of each calendar year by the ENGINEER. Updated hourly rates will be used for all task orders. Additionally, ENGINEER will be reimbursed for actual costs and expenses incurred in performance of the PROJECT.
- B. Invoicing will occur following the last Friday of each month. Payments shall be due within 30 days of receipt of the invoice.
- C. A service charge of 10 percent will be applied to direct expenses incurred in performance of the PROJECT that include, but may not be limited to meals, lodging, and subcontractor services and outside services. All sales, use, value added, business transfer, gross receipts, or other similar taxes will be reimbursed to ENGINEER.
- D. An interest rate of 1.5% per month will be applied to all invoices that are not paid in full after 30 days following the invoice date. Payments will be applied to the outstanding interest first and then to the principal.
- E. The ENGINEER may discontinue work on the PROJECT by issuing the OWNER a written seven-day notice if full payment for an invoice is not received within 60 days of the date of the invoice. Suspension of work will continue until full payment is made for all outstanding invoices including interest. The ENGINEER accepts no liability for damages or delays that result from its suspension of work. The OWNER may not use information or work product provided by the ENGINEER until full payment is made including applicable interest.

4. INSURANCE

- A. The ENGINEER will maintain insurance coverage throughout the term of the AGREEMENT. Insurance coverage will include:
 - 1) Worker's Compensation
 - State Statutory
 - Employer's Liability \$100,000
 - 2) Comprehensive General Liability

Bodily Injury and Property Damage Combined Single Limit	\$1,000,000 \$1,000,000
3) Automobile Liability Combined Single Limit	\$1,000,000
4) Professional Liability	\$2,000,000

5. LIMITATION OF LIABILITY

- A. The ENGINEER shall not be liable for damages or delays resulting from actions or inaction of a third party that is not under the direct control of the ENGINEER, such as government agencies that have review and permit authority.
- B. The OWNER shall indemnify and hold harmless the ENGINEER, its subcontractors, agents and employees for all liability, other than that caused solely by the negligent acts, errors, or omissions of the ENGINEER.
- C. The ENGINEER shall indemnify and hold harmless the OWNER, its agents, representatives, consultants and employees for all liability, other than that caused solely by the negligent acts, errors, or omissions of the OWNER.
- D. If the negligence or willful misconduct or both ENGINEER and OWNER (or a person identified above for whom each is liable) is a cause of such damage or injury, the loss, cost, or expense shall be shared between ENGINEER and OWNER in proportion to their relative degrees of negligence or willful misconduct and the right of indemnity shall apply for such portion.
- E. The OWNER shall defend, indemnify and hold harmless the ENGINEER, its subcontractors, agents and employees for all liability resulting from construction of the PROJECT, if the ENGINEER is not retained to perform construction phase services on the PROJECT.
- F. To the fullest extent permitted by law, and notwithstanding any other provision of this AGREEMENT, the total liability, in the aggregate, of the ENGINEER and the ENGINEER's officers, directors, partners, employees and subconsultants, and any of them, to OWNER, for any and all claims, losses, costs, or damages, including attorneys' fees and costs and expert-witness fees and costs of any nature whatsoever or claims expenses resulting from or in any way related to a Specific Project or Task Order, or this AGREEMENT, from any cause or causes shall not exceed the total compensation received by the ENGINEER under this AGREEMENT, or

the total amount of \$1,000,000, whichever is greater. It is intended that this limitation apply to any and all liability or cause of action however alleged or arising, unless otherwise prohibited by law.

- G. The ENGINEER is not responsible for delays or damages caused by acts of God such as floods or earthquakes, or other circumstances beyond control of ENGINEER.
- H. The ENGINEER, its subcontractors, agents and employees shall not be liable for consequential damages or indirect liability from a third party. The OWNER will defend, indemnify and hold harmless the ENGINEER, its subcontractors and agents from such an occurrence.

6. TERMINATION

- A. This AGREEMENT may be terminated by either party in the event that the other party has not performed any material covenant or has otherwise breached any material term of this AGREEMENT (i) upon receipt of written notice thereof if the nonperformance or breach is incapable of cure, or (ii) upon the expiration of ten (10) calendar days (or such additional cure period as the non-defaulting party may authorize) after receipt of written notice thereof if the nonperformance or breach is capable of cure and has not been cured.
- B. Upon termination, ENGINEER is entitled to full compensation as computed under this AGREEMENT for the work completed
- C. Either party may terminate this AGREEMENT without cause at any time upon thirty (30) days prior written notice to the other party.

7. ASSIGNMENT

This AGREEMENT shall be binding on the heirs, successors and assignees of the parties. This AGREEMENT may not be assigned, transferred, conveyed, or encumbered, whether voluntarily or by operation of law, by either party without the prior written consent of the other party. Unauthorized assignment is void and nonbinding.

8. OPINION OF PROBABLE CONSTRUCTION COST

Opinions of probable construction cost prepared by the ENGINEER are based on its experience with past projects of similar construction. It is understood that the ENGINEER has no control over economical factors or unknown conditions that may have a significant impact on actual PROJECT cost. The ENGINEER does not guarantee its cost estimates and accepts no liability for problems created by the difference in actual costs and opinions of probable construction cost.

9. DOCUMENTS

Contract documents, calculations, electronic information and survey information created by the ENGINEER as “instruments of service” are the property of the ENGINEER. OWNER’s use of the documents and other “instruments of service” on any other project is prohibited and the ENGINEER accepts no liability for such action.

10. CONSTRUCTION PHASE SERVICES

- A. The ENGINEER has based its cost to provide construction phase services, on the ENGINEER, its employees, subcontractors and agents being named as additional insured under any construction contractor(s) (herein CONTRACTOR) General Liability and Builder’s All Risk Insurance. The OWNER shall include in any contract with the CONTRACTOR a statement to defend, indemnify and hold harmless the ENGINEER; its employees, subcontractors and agents for any and all action resulting from construction activity.
- B. Observations performed by the ENGINEER or its agents are intended to assist the OWNER to obtain the best project possible and not to assume the CONTRACTOR’s responsibility to comply with the requirements of any contract documents. The parties to this AGREEMENT recognize that the CONTRACTOR has sole responsibility to ensure that any contract requirements are met. The CONTRACTOR is responsible for all methods used to complete the PROJECT and is responsible to follow all applicable safety procedures.
- C. “Record” documents prepared by the ENGINEER are based on information supplied by the CONTRACTOR and its agents and are only as accurate as the information provided by the CONTRACTOR. The ENGINEER does not assume responsibility for the accuracy of the “record” documents.

11. ADHERENCE TO APPLICABLE LAWS

- A. The laws of the State of Utah shall govern all aspects of this AGREEMENT.
- B. The ENGINEER shall comply with the applicable requirements of the Equal Employment Opportunity Laws, Title VI of the Civil Rights Act of 1964, as amended, and with the provisions contained in 49 CFR 21 through Appendix C and 23 CFR 710.450(b), and the Fair Labor Standards Act.

12. HAZARDOUS WASTE

OWNER will indemnify ENGINEER from all claims, damages, losses, and costs, including attorney's fees, arising out of or relating to the presence, discharge, release, or escape of hazardous substances or contaminants from the PROJECT. OWNER recognizes that ENGINEER assumes no risk and/or liability for waste or the waste site.

13. ATTORNEY'S FEES

In the event any action or proceeding is brought by any party against any other party under this AGREEMENT, the prevailing party shall be entitled to recover attorney's fees and costs in such amount as the court may adjudge reasonable.

14. SEVERABILITY

The provisions of this AGREEMENT are severable, and should any provision hereof be void, overly broad or unenforceable, such void, overly broad or unenforceable provision shall not affect any other portion or provision of this AGREEMENT.

15. WAIVER

Any waiver by any party hereto of any breach of any kind or character whatsoever by any other party, whether such waiver be direct or implied, shall not be construed as a continuing waiver of or consent to any subsequent breach of this AGREEMENT on the part of the other party.

16. NOTICES

All notices, demands, and requests required or permitted to be given hereunder shall be in writing and shall be deemed duly given if delivered or if mailed by registered or certified mail, postage prepaid, addressed to the following:

ENGINEER: Brian Gabler, P.E.
LEI Consulting Engineers and Surveyors, Inc.
3302 North Main Street
Spanish Fork, UT 84660

OWNER: Chris Thompson, P.E.
Public Works Director/City Engineer
Spanish Fork City
40 South Main Street
Spanish Fork, Utah 84660

Either party shall have the right to specify in writing another name or address to which subsequent notices to such party shall be given. Any notice given hereunder shall be deemed to have been given as of the date delivered or mailed to the other party.

17. ATTACHMENTS

The following attachments are included as part of the AGREEMENT:

Attachment A – Standard Task Order Form
Task Orders, as awarded.

This AGREEMENT constitutes the entire understanding and AGREEMENT between the parties and supersedes all prior AGREEMENTS and understandings, whether written or oral, and may only be changed by written amendment executed by both parties.

Approved for OWNER

By _____
Title _____
Date _____

Accepted for LEI Consulting Engineers and Surveyors, Inc.

By  _____
Title Principal
Date August 2, 2011



Memo

To: Mayor and City Council
From: Chris Thompson, Public Works Director/City Engineer
Date: August 11, 2011
Re: Spanish Fork River Connector Trail, Task Order 1A

Staff Report

The city currently has budgeted to reconstruct and repair much of the pavement in Canyon View Park. This project would also make several parking and safety improvements in the park. The city also has received a grant and has budgeted to construct a trail through the park that would connect the existing dripping rock trail along the river on the other side of the golf course to the newly constructed river trail through the river bottoms.

The trail project was planned for completion in 2012, but deterioration of the pavements in the park required more immediate work to be done. After reviewing all the options we could determine, city staff concluded that the most efficient way to proceed with both projects would be to design and construct them concurrently. This would also give us the best finish product.

We are well into this year's construction season so a large amount of design work needed to be completed immediately on this project. Our city engineering staff is very busy on many existing city projects which we could not leave to dedicate the necessary time to complete this design. City staff does intend to do the construction survey and project management once the design is completed.

LEI Engineering is a local engineering company with enough staff to complete this project expeditiously. We therefore presented to the city council on August 2, 2011 the concept of hiring LEI Engineering for the amount not to exceed \$35,000 to complete this design work. The city council agreed to have the Mayor approve this task order and ratify it in the next council meeting. We therefore recommend that city council ratify this task order with LEI Engineering.

Attached: task order



ATTACHMENT A

TASK ORDER NO. _____
TO
ENGINEERING SERVICES AGREEMENT

OWNER: _____
Effective Date of Agreement: _____

THIS TASK ORDER NO. _____ TO ENGINEERING SERVICES AGREEMENT (this "TASK ORDER") is made and entered into as of the 2 day of August, 2011, by and between OWNER and LET CONSULTING ENGINEERS AND SURVEYORS, INC. (LET) who agree as follows:

- PROJECT. The PROJECT associated with this TASK ORDER is described as follows: SPANISH FORK RIVER CONNECTOR TRAIL
The PROJECT SITE is located as follows: NEAR CANYON VIEW PARK
- SCOPE OF SERVICES. The SCOPE OF SERVICES associated with this TASK ORDER is attached hereto as Exhibit T.O. _____.
- FEES. OWNER shall reimburse _____ for services provided under this AGREEMENT on an hourly billing rate plus reimbursable expenses basis, with an estimated not-to-exceed fee of \$35,000 in accordance with the _____ Standard Fee Schedule ("FEE SCHEDULE") attached hereto as Exhibit T.O. _____ OWNER hereby agrees that all fees and charges set forth in the FEE SCHEDULE are acceptable to OWNER, and OWNER further agrees to pay all fees and charges to HAL in accordance with the ENGINEERING SERVICES AGREEMENT and FEE SCHEDULE.
- SCHEDULE. Design SERVICES associated with this TASK ORDER are anticipated to be completed within 60 calendar days following written authorization from the OWNER to _____ to proceed.
- ATTACHMENTS AND EXHIBITS. All attachments and exhibits referenced in or attached to this TASK ORDER are incorporated herein and are made a part of the ENGINEERING SERVICES AGREEMENT.
- OWNER has read and understood all ATTACHMENTS and EXHIBITS and agrees that such items are hereby incorporated into and made a part of the ENGINEERING SERVICES AGREEMENT.

LET
IN WITNESS WHEREOF, OWNER and ~~HAL~~ have executed this TASK ORDER as of the date first above written.

OWNER: _____

By: _____

Its: _____

Attest: _____

Its: _____

By: Brian Mall

Its: PRINCIPAL

Attest: Jan L. [Signature]

Its: PRINCIPAL



Memo

To: Mayor and City Council
From: Chris Thompson, Public Works Director/City Engineer
Date: August 10, 2011
Re: 2011 Sanitary Sewer and Waterline Replacement Project, Change Order #1

STAFF REPORT

This change order is to adjust quantities and changes made to construct the 2011 Sanitary Sewer and Waterline Replacement Project.

During the construction of the project along 410 South between Nebo St. and 1150 East, the trench failed due to pre existing conditions of the sub base material. To repair the road for safe driving and pedestrian conditions, it will require the contractor to remove the existing asphalt and install engineering fill and road base for stabilization of the sub base.

This change order was approved immediately so that we would not have to pay for down time. We recommend that the city council ratify this change order for a total of \$5,850. There is still approved budget available to pay the cost of the change order.

Attached: change order



Spanish Fork City

Contract Change Order

Change Order Number: **1**

Contract for	2011 Sanitary Sewer & Waterline Upgrade	Date	7/28/2011
Owner	Spanish Fork City		
To	Johnston and Phillips INC		

You are hereby requested to comply with the following changes from the contract plans and specifications:

Description of Changes (Supplemental Plans and Specifications Attached)	Decrease in Contract Price	Increase in Contract Price
Granular Borrow 110 Ton @ \$16/ Ton		\$1,760.00
Road Base 25 Ton @ \$18/ Ton		\$450.00
3" Asphalt Patch 1600 SF @ \$2.20/ SF		\$3,520.00
Remove Asphalt 1600 SF @ \$0.75/ SF		\$120.00
TOTALS :	\$-	\$5,850.00
NET CHANGE IN CONTRACT PRICE :	\$-	\$5,850.00

JUSTIFICATION

Major trench failure along 410 South between Nebo St and 1150 East requiring the contractor to reinstall engineering fill, road base, and the asphalt.

See attached memo

The amount of the contract will be increased by the sum of : Five Thousand Eight Hundred Fifty Dollars and 00/100.

The contract total including this and previous change orders will be : Three Hundred Thirty-Five Thousand one Hundred Sixty-Four Dollars and 75/100. Dollars \$335,164.75

This document will become a supplement to the contract and all provisions will apply herein.

Requested: _____
(Owner)

Date: _____

Recommended: _____
(Owner's Architect/Engineer)

Date: _____

Accepted: _____
(Contractor)

Date: _____

ORDINANCE NO. 12-11

ROLL CALL

VOTING	YES	NO
G. WAYNE ANDERSEN <i>Mayor (votes only in case of tie)</i>		
ROD DART <i>Council member</i>		
RICHARD M. DAVIS <i>Council member</i>		
STEVE LEIFSON <i>Council member</i>		
JENS P. NIELSON <i>Council member</i>		
KEIR A. SCUBES <i>Council member</i>		

I MOVE this ordinance be adopted:

I SECOND the foregoing motion:

ORDINANCE No. 12-11

AN ORDINANCE AMENDING THE CITY CODE ADDRESSING THE CITY SEAL AND VARIOUS ELECTION ISSUES

WHEREAS, Spanish Fork City has adopted a city seal and a city engineering seal;

and

WHEREAS, the City has recently changed it's City logo and desires the logo to be represented on the seals; and

WHEREAS, the State has made minor changes to some election requirements, which require the City to make minor changes in its ordinances;

NOW THEREFORE, be it ordained and enacted by the Spanish Fork City Council

as follows:

I.

Spanish Fork City Municipal Code §1.12.010 is hereby amended as follows:

1.12.010 City Seal Designated

The municipal seal of the City shall be as follows:



II.

Spanish Fork City Municipal Code §2.32.040 is hereby amended as follows:

1.32.040 Engineers Seal

The city engineer shall be provided with a seal for his or her use, as follows:



III.

Spanish Fork City Municipal Code §2.48.010 is hereby amended as follows:

2.48.010 When Held - Term of Office

On the Tuesday next, following the first Monday in November, 1973, and biennially thereafter, there shall be held an election to fill all elective offices to be vacated in the city at twelve noon (12:00) on the first Monday of January following. Such elected officers shall continue in office for the term as hereinafter provided unless sooner removed for cause, resignation or death.

There shall be elected in the year 1973 a mayor, and two (2) councilmembers for the term of four (4) years and two (2) councilmembers for a term of two (2) years, and quadrennially thereafter, a mayor and two (2) councilmembers for a term of four (4) years. In the year 1975 there shall be elected three (3) councilmembers for a term of four (4) years and quadrennially thereafter.

The officers so elected shall be required to take the oath of office on the first Monday in January at 12:00 noon, or soon thereafter as practically possible.

IV.

Spanish Fork City Municipal Code §2.48.020(B) is hereby amended as follows:

2.48.020 Nominations

B. To become a candidate for elective office at a November election of the City, a declaration of candidacy or nomination petition shall be filed with the City Recorder during office hours between July 1st and July 15th. In the event July 15th falls on a weekend or a holiday, the deadline shall be extended to the next business day at 5:00 p.m. The declaration of candidacy shall comply with the form set forth in Utah Code Ann.

§20A-9-203(4).

V.

This Ordinance shall become effective 20 days after passage and publication.

PASSED AND ORDERED PUBLISHED BY THE CITY COUNCIL OF SPANISH FORK, UTAH, this 16th day of August, 2010.

G. WAYNE ANDERSEN, Mayor

Attest:

Kent R. Clark, City Recorder



Memo

To: Mayor and City Council
From: Chris Thompson, Public Works Director/City Engineer
Date: August 11, 2011
Re: 1000 North Main Street Traffic Analysis and Signal Design, Task Order A

Staff Report

As part of the North Park project, 1000 North needs to be widened all the way to Main Street and a new signal needs to be constructed at Main Street. This task is to redesign that signal according to the new work being completed by UDOT with the ICORE project.

This task is also to prepare bid documents and manage the construction of the signals. Construction is expected to be completed this fall.

We recommend that Task Order A for the amount of \$17,000 be awarded to Horrocks Engineering to do this modeling and signal design. The cost of this task order will be paid for out of the RDA budget.

Attached: task order

Task Order A – Per Master Services Agreement

To: Chris Thompson, P.E.
Public Works Director
Spanish Fork City



From: John Dorny, P.E.
Brian Christensen, P.E.

Date: July 28, 2011

JN 195-0803

PN 11.014

Subject: 1000 N and Main St. Traffic Analysis and Signal Design

Thank you for inviting Horrocks Engineers to submit a proposal to perform continued Traffic Engineering services at the intersection of 1000 N and Main Street. A signal design was completed at the study intersection in 2008 by Horrocks to accommodate the widening of 1000 North. Since that time, the I-15 CORE project has change geometrics and traffic patterns sufficiently to warrant revisiting the signal design. We understand that the signal design included traffic from the North Park Development and the future expansion of Chappel Drive north of US 6. This scope of work reflects the work needed to update the signal design to accommodate local development, regional changes to the Interstate system, and restrictions in travel between US 6 and I-15.

Scope of Work

Task A – Traffic Analysis

Estimated cost: \$7,500

Horrocks will estimate future traffic at the study intersection using the following methods as appropriate: past traffic studies, I-15 CORE volumes, existing counts, and future travel model volumes. The purpose of this task is to ensure that the intersection modifications can accommodate traffic for the near term and future term (2040). We will review the traffic from the North Park development and compare to the recent big boxes that are planned to be along 1000 North. We will focus on the right-of-way needed to accommodate turn pockets at the study intersection. This information will be used in the signal design.

Task B – Signal Design

Estimated cost: \$4,500

Horrocks will revise the traffic signal design at the intersection of 1000 North and Main Street to be compatible with the proposed intersection configuration of the I-15 CORE project, and proposed curb and gutter realignment on the southeast corner in 2012. The modified signal design will include the following configuration: single left turn lane, three (3) thru lanes, single right turn lane for the north and south approaches to the intersection.

As the City has already ordered the poles and mast arms for this intersection as per the previous design, we have verified that the hardware that has been ordered will be compatible with the new intersection configuration.

We will use the existing mapping and utility information that was previously used for the earlier design.

Task C – Construction Management

Estimated cost: \$5,000

Horrocks will perform traffic signal inspection services for the construction of the signal at 1000 N/Main Street. Upon completion of construction, Horrocks will assist the City with the detection configuration and set-up, initial timing, and fine-tuning of the timing.

The cost to complete the work described above is **\$17,000** including all direct costs such as travel, phone, fax, computer, etc. Additional work due to site plan changes and/or additional project meetings will be performed/attended only at your request per our hourly rate schedule.

We can complete the work described above in 15 business days after receiving authorization to proceed.

We look forward to performing this work and can begin immediately at your request. If you have any questions, please feel free to contact Horrocks.

Sincerely,

John Dorny