DRAFT

DOWNTOWN UTILITY UNDERGROUNDING FEASIBILITY STUDY

MSA
Murray, Smith & Associates, Inc.
Engineers/Planners

City of Roseburg, Oregon

December 2010

DOWNTOWN UTILITY UNDERGROUNDING FEASIBILITY STUDY

FOR

CITY OF ROSEBURG

DECEMBER 2010

MURRAY, SMITH & ASSOCIATES, INC.
175 West B Street
Building K-2
Springfield, Oregon 97477

TABLE OF CONTENTS

5. COST ESTIMATE

6. CONCLUSION AND NEXT STEPS

APPENDICES

COMPACT DISC (To Be Submitted with Final Report)

- City Franchise Agreements (copies)
- City of Roseburg – Downtown Roseburg Master Plan Implementation
- Utility Mapping
- Property Owner Responses

EXECUTIVE SUMMARY

The City of Roseburg retained Murray, Smith & Associates, Inc. (MSA) to complete a feasibility study for converting overhead utilities to underground along an approximate 1,800-foot section of SE Main Street in downtown Roseburg. The project area includes Main Street from Douglas Avenue to Mosher Avenue. Existing overhead utilities include power, phone, cable TV, and internet, owned by Pacific Power, Qwest, Comspan Communications and Douglas Fast Net.

Project design objectives and key challenges were identified. MSA coordinated with each of the utilities with existing aerial facilities to develop design criteria for underground conversion. Several alternative corridor options were analyzed, and potential undergrounding corridors were identified. A preferred alternative was selected, and a conceptual level undergrounding design was developed. City staff input and comment was received and incorporated on a regular basis throughout the process.

The proposed undergrounding can be accomplished in a manner that allows the relocated overhead utilities to coexist with existing underground utility facilities and underground voids such as coal chutes and basement accesses. Based on the conceptual design, the estimated cost to complete the proposed undergrounding is $2,800,000. This planning level cost includes a 30% contingency.

SECTION 1
INTRODUCTION AND PROJECT BACKGROUND

Murray, Smith & Associates, Inc. (MSA) an engineering consulting firm specializing in municipal utility and transportation design, was retained by the City of Roseburg (City) to complete a feasibility study for converting overhead utilities to underground along an approximate 1,800-foot section of SE Main Street in downtown Roseburg. The project area extends from Douglas Avenue, at the north end, south to Mosher Avenue. (Please refer to Appendix A, Conceptual Utility Undergrounding Plan Sheets, for a graphical representation of the project limits.) Aerial utility facilities along Douglas Avenue have prior been converted to underground; this has demonstrated how dramatically the aesthetics can be improved and how utility undergrounding can help to create a vibrant downtown business district. The City has recently completed major aesthetic enhancements to other downtown areas, including upgraded street lighting, welcoming features, and street furniture; the City and the local community have expressed a desire to continue to enhance and improve the downtown area.

Overhead utilities identified within the project area include power (Pacific Power), phone, cable TV, and internet (Qwest, Comspan Communications and Douglas Fast Net). Existing underground utilities that could potentially be affected by the undergrounding of the overhead utilities include sanitary sewer (Roseburg Urban Sanitary Authority), storm sewer and water (City of Roseburg), gas (Avista), communications (Qwest), and power (Pacific Power).

The purpose of this study is to determine the feasibility and potential cost of converting overhead utilities to underground along SE Main Street within the project limits described above. A conceptual undergrounding design has been developed, and a corresponding planning level estimate prepared for the recommended corridor. This report summarizes the findings of the feasibility study and describes the recommended corridor design.

During the study, City staff participated on a regular basis through project progress meetings, on site consultation, and comment provided on interim deliverables, in order to confirm the direction and development of the work. MSA will attend a Public Works Commission meeting and a City Council meeting to present and discuss the project with the community.

SECTION 2
STUDY AREA DESCRIPTION

General

The section of SE Main Street identified for the downtown utility undergrounding feasibility study is currently serviced by four overhead utilities providing service to local businesses and residents. Residential dwellings include upper floor apartments located above businesses. Two single dwelling housing units and a large apartment complex are located on Main Street south of SE Lane Avenue. A significant number of the businesses located on the west side of SE Main Street have business frontages and primary entrances on SE Jackson Street and secondary or delivery entrances on SE Main Street. The Main Street right-of-way (ROW) is typically 60 feet wide; at a few locations the ROW is either wider or narrower. Existing ROW improvements are comprised of an asphalt roadway, concrete curbs and gutters, and concrete sidewalks.

The existing overhead utilities (Pacific Power, Qwest, Comspan Communications and Douglas Fast Net) are located on wooden utility poles located in the sidewalk along the west side of SE Main Street. The existing underground utilities include water and storm (City of Roseburg (City)), sanitary sewer (Roseburg Urban Sanitary Authority (RUSA)), and gas (Avista Utilities). Qwest facilities were identified and included in Murray, Smith & Associates, Inc. (MSA) developed study mapping. Mapping was not provided by Qwest due to security concerns as cited by the owner.

Recently, gas service improvements have been constructed within the study area. This work affected some concrete sidewalk panels and included minor patch repairs to the asphalt roadway. The City has indicated there is currently no moratorium on cutting the asphalt or concrete on SE Main Street within the project area. Significant roadway and sidewalk improvements have occurred recently on SE Douglas Avenue adjacent to the project area. To avoid impacting recently constructed roadway and sidewalks, sidewalk and roadway trench cuts are minimized within the SE Douglas Avenue ROW in the subject conceptual design. Trenchless techniques are recommended for the short segment of conduit that would be required within SE Douglas Avenue ROW.

The study area is located within the Roseburg Downtown Historic District. Within this District, there are buildings, properties, and/or sites that have been designated as historically or architecturally significant. Proposed improvements and alterations to buildings within this District will have to be reviewed and approved by the Historic Resource Review Commission. Due to this status, the project team considered utilizing existing service connections to minimize alterations to buildings (such as installation of additional conduit). Pacific Power has confirmed that utilizing the existing connections will generally not be feasible, due to the need to meet current standards, including voltage requirements. Current Pacific Power standards are discussed in full in Section 3.

Existing Conditions

Please refer to the Conceptual Design in Appendix A for a map of the project study area.

Roadway and Sidewalk

The average roadway width for SE Main Street is 40 feet. SE Main Street contains two lanes of one-way traffic heading northeast from SE Lane Avenue to SE Douglas Avenue. South of SE Lane Avenue is single lane, two way traffic. There are currently no bike lanes within the project area. Parallel parking is available on both sides of the street throughout the project area. Parking is currently free, with the exception of the area to the south of SE Lane Avenue. The sidewalk on the east side of SE Main Street has an average width of 8 feet. The sidewalk on the west side of SE Main Street ranges in width from 11 feet to slightly over 13 feet. Trees, water service meter boxes and gas valves are located in the concrete sidewalk. The trees are typically offset from the face of curb by 20 to 30 inches, while the meter boxes and valves are typically offset from the face of curb by 16 to 30 inches.

Existing Underground Utilities

System mapping was provided by all utilities with underground facilities, except for Qwest. (Qwest has cited security concerns as a reason not to share system mapping.) MSA completed field verifications to confirm approximate pipe locations (mains and service laterals), manhole locations (storm, sanitary and communications), valve locations (water and gas), and other utility facilities. Pipe materials, sizes and vertical and horizontal locations were identified or confirmed where feasible, however test hole excavation was beyond the scope of the feasibility study.

Water – The water mains located within the project, as identified on mapping provided by the City of Roseburg, range in size from 6-inch to 18-inch in diameter and are comprised of either ductile iron (DI), cast iron (CI), or asbestos concrete (AC). The water service laterals range in size from 3/4-inch to 4-inch diameter with 1-inch diameter being the most common. The service lateral materials are comprised of either copper (CU) or polyethylene (PE). Although depths were not verified for this study, water mains are typically installed with 3 to 4 feet of cover.

Storm Sewer – The storm sewer mains located within the project, as identified on mapping provided by the City of Roseburg, range in size from 8-inch to 24-inch in diameter; catch basin laterals are typically 6-inch to 8-inch in diameter.

Sanitary Sewer – The sanitary sewer mains located within the project, as identified on mapping provided by RUSA, range in size from 6-inch to 16-inch in diameter. Depths at manholes were verified and range between a minimum of 3.5 feet and a maximum depth of 6.5 feet. Sanitary sewer laterals were identified from the One-Call Center request for marking and maps.

Natural Gas – A 4-inch diameter natural gas main is located along SE Main Street on the west side and is comprised mostly of plastic with some steel south of SE Lane Avenue. Service line laterals range in size from 3/4-inch to 1 1/4-inch diameter. Additionally, a 2-inch steel and a 4-inch diameter plastic main branch off at SE Lane Avenue to the east. Although depths were not verified for this study, gas mains are typically installed with a minimum of 30 inches of cover.

Communications – A communication duct bank is currently located along the east side of SE Main Street. The duct bank extends throughout the entire length of the project from SE Douglas Avenue to SE Mosher Avenue. There are also communication facilities (duct banks) on SE Lane Avenue (east and west of the project), SE Oak Avenue, (west of the project), and SE Washington Avenue (east and west of the project). Services laterals are located at 753 SE Main Street and 440 SE Main Street.

Power – A short run of underground power is located within the project study area. From a riser pole located on the northwest corner of SE Washington Avenue and SE Main Street, the underground power crosses SE Main Street to supply power to the Umpqua Bank. Conduit size and depth were not confirmed for this study.

Existing Overhead Utilities

Overhead utilities within the project area share wooden utility poles owned by Pacific Power. The poles are located in the sidewalk on the west side of SE Main Street. Aerial service connections cross SE Main Street where necessary to serve properties on the east side of the street. Poles would be removed within the project limits under the conceptual design, and each utility would be responsible for removing their existing equipment from the poles. Pacific Power provides single phase and three phase power rated at 120/240 volts to meet current customer requirements. Approximately 50% of the customers supplied within the study area appear to utilize the three phase supply. Existing power meters within the study area vary in type, age, and location. Some meters are located inside of buildings.

Comspan Communications currently utilizes property at 537 SE Main Street as a distribution substation.

Coal Chutes and Basements

Often in older sections of downtown areas coal chutes and basement accesses are located within the sidewalk area. Such subsurface voids (if in current use) could present an obstacle to a potential undergrounding corridor. As such, MSA undertook to locate and identify coal chutes, basement accesses, and other features that extend beyond a building footprint into the sidewalk ROW. With the City's cooperation, all property owners and tenants within the project area were asked, by letter, to identify any subsurface features that may extend into the right-of-way. The letters were well received, with a significant number of responses containing valuable information. MSA field verified all properties that indicated potential

conflicts in their responses, and identified additional features not addressed specifically by letter response. Efforts continue to contact property owners who have to date been non-responsive.

The following subsurface features were identified. Underground features were inspected, measured, and added to the base mapping, and were accommodated by the conceptual design. Generally the hatch size corresponds to the dimensions of the feature in plan view. Additional information, including photos of the properties identified in the table below, are included in Appendix B.

Address	Business	Hatch Size	Depth	Comments
911 SE Lane Ave.	Kohlhagen Apt.'s	6.7' x 6.7'	5.8'	Owner indicated hatch is used periodically
749 SE Jackson St.	Elks Lodge	4.2' x 3.4'	+5'	Owner non-responsive. Hatch appears to be an access point for the fire suppression system.
920 SE Cass Ave.	Masonic Laurel Temple Lodge	6.5' x 6.5'	+ 5'	Owner non-responsive. MSA was unable to confirm current use.
949 SE Oak Ave.	Business	3.3' x 3.3'	11'	Owner non-responsive. MSA was unable to confirm use.
507 SE Jackson St.	Mystic Earth	6' x 5.5'	2' - 5'	Current tenant did not indicate current use.

SECTION 3
DESIGN CRITERIA

In order to determine feasibility and estimated cost to underground existing overhead utilities, Murray, Smith & Associates, Inc. coordinated with City of Roseburg (City) staff and engineering representatives from each of the affected utilities to develop specific design standards, guidelines, and requirements applicable and appropriate to the project. Sufficient detail was obtained to support the conceptual design. Additional coordination with City and utility staff would be required to develop a final design and specification suitable for construction.

City of Roseburg

- All overhead utilities between SE Douglas Avenue and SE Mosher Avenue along SE Main Street would be converted to underground, including all currently overhead crossings of Main Street. Street crossings transverse to Main Street will be undergrounded to the nearest suitable utility pole outside of the project limits on the cross street, east or west of SE Main Street.

- All utility poles within the project area should be removed. Street lighting should be provided to replace street lights currently mounted on utility poles, and should be similar to aesthetically pleasing street lights recently installed by the City.

- Pad-mounted transformers, switch cabinets and other similar aboveground, surface-mounted facilities are acceptable. These facilities can be located within the sidewalk, provided that all required utility specific geometric clearance and Americans with Disabilities Act (ADA) requirements are met. Mid-block curb extensions and areas behind the sidewalk, within easements, are also acceptable locations for such facilities.

- The recommended utility corridor should be a joint trench constructed according to City standards and providing all clearance to other facilities as defined by the utilities below. (See Appendix C for the proposed Conduit Installation Detail.) Open trench construction should be avoided on Douglas Avenue to preserve recently constructed pavement, curb, and sidewalk.

- The feasibility study should consider options for locating the utility corridor in the asphalt roadway and under the sidewalk on the west side of SE Main Street.

- Concrete sidewalk panels are to be replaced in full. Partial panel replacement is not acceptable.

- Sidewalk improvements, other than restoration of sidewalk panels affected by the undergrounding, are not required as part of the project and are not included in the estimate.

- A half-street replacement of the existing asphalt is required if the utility corridor is located within the roadway. Asphalt trench patching is acceptable for underground services crossing the roadway.

- Existing underground utility owners (gas, water, sanitary, and storm) should be notified well in advance of any proposed construction, in order to allow potential upgrades to their facilities prior to half street improvements, if applicable.

Pacific Power

- Currently, customer loads within the project study area are served by either 120/240 volt single-phase delta or three-phase delta, pole mounted, transformers. This configuration is obsolete and not a currently supported standard. Pacific Power has indicated that 120/208 volt three-phase wye pad mounted transformers (a current standard configuration) will be most suitable for the subject application.

- Use of current standard 120/208 volt three-phase wye transformers will require installation of new meter bases, and, potentially, modifications to certain customer owned equipment.

- A 277/480 volt three-phase power supply can be considered in lieu of the 120/208 volt three-phase supply, in order to extend primary runs between transformers or lengths of secondary runs, if required.

- If 277/480 voltage is employed as noted above, dry transformers are required for each secondary service in order to supply 120/240 volts.

- The 120/208 volt three-phase wye pad mounted transformers are approximately 5.25 feet deep by 4.75 feet wide by 4.1 feet tall.

- Required clearances for transformers: 8 feet from any structure or roof overhang; 10 feet from building openings. (Please refer to the Appendix D for a complete listing of Pacific Power clearance requirements).

- Transformers are to be located on padmounts (ground surface mounted).

- Padmounted switch gears require 10 feet of clearance in the front of the facility, for maintenance access (see Appendix E for additional clearance requirements).

- 4-foot by 4-foot subsurface pull boxes are required for all primary and secondary line runs exceeding 200 feet in length and at all 90-degree bends.

- The pull boxes installed in sidewalks or roadways must use traffic rated lids.

- New meters are to be grouped/ganged at suitable outside locations. Meters currently located inside of structures would be relocated outside.

- Conduit sizes: 3-inch or 4-inch for secondary power; 5-inch or 6-inch for primary power. Conduit material required for this project is to be Schedule 40 gray PVC pipe. Additional conduit requirements can be found in Pacific Power standards included in the Appendix D.

- The conduit is to have a minimum cover of 24-inches and a minimum of 12-inches horizontal clearance from other utilities. Additional clearance requirements include 12-inches minimum separation (horizontal or vertical) between primary and secondary power.

Comspan Communication

Comspan is a local provider of television, internet and telephone. Comspan has noted that this area of Roseburg has a small revenue base; as such Comspan would consider abandoning all service within this area if required to underground facilities. Comspan currently leases a facility at 537 SE Main Street which acts as a distribution substation for the area. The following underground conduit runs would be required if Comspan Communications were to continue service.

- Four, 4-inch diameter primary conduits into the existing leased facility at 537 SE Main Street.

- Service connections should be provided to each existing property along the proposed route, whether a current Comspan customer or not.

- Provide two 2-inch diameter conduits from cross-connect cabinets (the access point) to each existing customer connection. (Several current Comcast customers have two or three connections).

- Conduit runs cannot exceed 200-feet in length; maximum of two 90 degree bends.

- All conduit bends must be a minimum of 10 times the diameter of the conduit.

- All conduit runs must be single “home run” conduits from building to the nearest above ground cross-connect cabinet. Splices at the existing exterior connection points are not acceptable. (“Home runs” allow telecommunications and data services to achieve desired data transmission speeds and minimize data loss errors.)

- Cross-connect cabinets are to be provided every 200 feet. Cabinets should be above ground.

- Typical cross-connect cabinet dimensions are 24 inches wide by 12 inches deep by 57 inches tall.

- Cross-connect cabinets are to be accessible at all times. Clearance requirements for the cabinets are: 36-inches (front) and 12 to 24-inches (rear and sides).

- Conduits are to be separated from other utilities by 12-inches of concrete or 24 inches of compacted earth. (Please refer to the Conduit Installation Detail in the Appendix C for Comspan Communication's requirements.)

Douglas Fast Net (DFN)

DFN is a fixed fiber and wireless broadband provider that provides high speed Ethernet, internet and point to point access for commercial and residential applications.

- Main or primary line: use 3-inch diameter conduit; service drops: use 2-inch diameter conduit.

- All 2-inch conduit is to terminate in a telecommunications closet or existing termination location.

- A 2-foot separation is required for underground clearance to water mains. This separation is to ensure that the water department may access their lines for any necessary repairs without putting the existing fiber optic at risk.

- Provide service connections to each property along the proposed route, including properties not currently served by DFN

- Underground pull box spacing is not to exceed 200 feet.

- Provide one above ground cabinet for cross-connecting individual circuits.

Qwest

Qwest offers fiber-optic internet service, high speed internet, digital home phone, wireless phone and TV services to commercial and residential clients. Qwest currently operates overhead and underground utilities within the project area. Qwest the provided the limited design criteria noted below.

- Primary lines: use 4-inch diameter conduit.

- Secondary (service connection) lines: use 2-inch or 4-inch diameter conduits (depending on the service size).

- Provide a single cross-connect cabinet, located approximately at the midpoint of the project area.

SECTION 4
EVALUATION OF ALTERNATIVES, RECOMMENDATIONS AND CONCEPTUAL DESIGN

General

As described in Section 2 of this report, Murray, Smith & Associates, Inc. (MSA) developed a composite base map incorporating available aerial photography and system mapping provided by the City of Roseburg (City) (Water and Storm Sewer), RUSA (Sanitary Sewer), Avista (Natural Gas), Pacific Power (Power), and Comspan Communications (Communications). MSA requested designation of utilities (paint markings) within the project area through the Oregon Utility Notification (One-Call) Center. Mapped locations were confirmed and revised by field observation and measurement. MSA used the revised composite base map to identify potential corridor options, recommend a preferred corridor alternative, and as the basis for the conceptual design.

Utility Corridor Alternatives

Two utility corridor alternatives were considered: one located within the roadway and one located within the sidewalk area. The two alternatives were evaluated based on a number of factors including the number of potential conflicts with existing underground utilities, constructability and access, impacts to existing above and below ground features (landscaping, signs, access hatches, etc.), impacts to the public and businesses during construction, and the location of new utility features such as vaults and pull boxes.

Roadway Corridor Alternative

The potential roadway utility corridor is located within the roadway area of SE Main Street. The center line of this potential utility corridor is approximately 10 feet from the westerly curb. The corridor is constrained by a water main to the west (near the curb line) and a sanitary sewer to the east (near the roadway centerline). The available corridor between these facilities is approximately 10-feet to 15-feet wide, sufficient to provide the required 5-foot to 7-foot wide utility corridor. The roadway corridor is generally clear of existing utility facilities. Conflicts would be limited to water and gas service laterals to properties on the east side of Main Street, crossings of other facilities including water, gas, sanitary and storm, at Lane, Cass, Oak and Washington Avenue. There are approximately 40 such conflicts. The identified access hatches and coal chutes would not be impacted using this alternative. Impacts to other features, such as trees and signs, can be minimized. The roadway alternative would allow ample room for maneuvering construction equipment and materials.

During construction, a single travel lane and parking on the west side of SE Main Street will be required to be closed for trench excavation and installation of the utility conduits.

Subsurface structures such as pull boxes and utility vaults would be located in the roadway; thus utility crews would be required to close a lane of traffic during maintenance activities.

Sidewalk Corridor Alternative

A second option is to locate the utility corridor within a sidewalk area. In the project area, the sidewalk located on the west side of SE Main Street is relatively wider, and was investigated as a potential corridor location. The westerly sidewalk varies in width from 11 feet to 13.5 feet. This width is sufficient to provide the required 5-foot to 7-foot wide utility corridor. A corridor located within the westerly sidewalk would have approximately 60 conflicts, primarily with service connections. These services include gas, water, roof storm drains, and sanitary sewer laterals. In addition to the utility obstacles, three large basement access hatches would either require decommissioning or require the corridor to be routed into the street around the hatches. Decommissioning of these access hatches could potentially be unacceptable, as at least one property owner indicated general use to move large items into and out of the building basement. Construction access would be confined due to the close proximity of the buildings on the west side and existing trees, utility poles, fire hydrants and other facilities on the east side.

Due to the required trench width, a number of the existing trees located within the sidewalk would be removed during construction. Other facilities located in the sidewalk such as signs and fire hydrants would be replaced. A corridor within the sidewalk would require closures to sections of the sidewalk for significant periods of time during construction, a likely concern for impacted businesses. The parking area and traffic lane adjacent to the construction area would also likely be closed to stage materials and construction equipment.

A benefit of placing the corridor within the sidewalk is that subsurface structures such as pull boxes and utility vaults would be located in the sidewalk rather than in the roadway, allowing for easier access by utility maintenance personnel.

Recommended Utility Corridor Alternative

MSA reviewed the alternatives in detail with City staff at a Project Status Meeting and on site. Based on factors discussed above, the City and MSA concurred that the roadway corridor location was the preferred alternative. Although traffic and on-street parking will be impacted during construction of the roadway corridor, construction equipment will have better access to the work area, minimizing construction costs and the length of construction related impacts. Additionally, the reduced amount of potential conflicts with utilities and access hatches will reduce the overall cost of the project and provide for a more straight forward design.

MSA recommends locating the utility corridor within the roadway. MSA further developed the preferred alternative as described in more detail below. Please refer to the Conceptual Design in Appendix A for a figure of the preferred alternative.

Conceptual Underground Power Facilities

Undergrounding the existing overhead power lines requires that transformers, services, meters, and other electrical facilities be considered, as these have a major impact on the overall cost and feasibility of the project. These items are discussed below and shown on the Conceptual Design in Appendix A.

The conceptual design identifies the preferred locations for Pacific Power padmount transformers. The conceptual design currently utilizes padmounted 120/280 volt transformers. As previously discussed, 277/480 volt transformers can be considered for use if certain proposed transformer locations are relocated and longer primary or secondary runs are necessary. Vault installed (underground) 120/208 volt three-phase transformers are not recommended for this conversion as Pacific Power currently does not have any standard for the vault configuration. A vault configuration could be developed, but would require a significantly larger vault due to the clearance requirements. The cost of such a configuration would in our opinion render the project economically unviable.

Transformer locations identified are based on project design criteria, City staff comment, Pacific Power's recommendations, and field observations. Easements, where required, would need to be obtained and are discussed in greater detail below. Transformers are typically located outside of City ROW on the east side of SE Main Street. One transformer per block is generally sufficient to serve present needs. In the block south of SE Lane Avenue, two transformers on the west side of the street are utilized: one provides single-phase power for the two single dwellings and the other provides three-phase power for the remaining buildings.

Based on Pacific Power's initial analysis, two padmounted switch gears would be required: one on SE Douglas Avenue between SE Main Street and SE Kane Street and one on SE Lane Avenue between SE Main Street and SE Kane Street.

Pacific Power has recommended that a portion of the primary power is routed through the alleyway located between SE Main Street and SE Kane Street. The alleyway route would reduce the transmission length for primary power between transformers, which in turn would minimize power loss. This route would consist of one 6-inch diameter conduit beginning mid-block between SE Oak Avenue and SE Washington Avenue and extending to SE Douglas Avenue. A parallel 4-inch conduit would also be required for secondary power, beginning mid-block between SE Washington Avenue and SE Douglas Avenue. To minimize property disturbances, trenchless methods would be utilized to install this conduit.

Existing electrical service connections are located throughout the study area. Existing connections include both exterior wall mount and basement and interior locations. Interior meters are not acceptable according to current standard, and would have to be relocated to the outside. The project team considered utilizing existing connection points and meters to reduce costs. As noted earlier in this report, this is no longer considered an option since all

meters will need to be replaced to meet the new standard voltage. The majority of the current meter locations are non-standard; per the design criteria, the meters will be ganged conveniently at exterior wall locations. Grouping the meters at exterior locations allows better access and is aesthetically preferable. Potential locations for new grouped/ganged meters have been identified on the conceptual design, typically at mid-block locations where feasible.

Conceptual Underground Communication Facilities

The conceptual design identifies the potential locations for communication conduits, services, pull boxes, and cabinets based on the criteria provided by Comspan, DFN, and Qwest. These items are discussed below and shown on the Conceptual Design in the Appendix A.

Communications service connections have been provided for each property. Comspan cabinets have been spaced every 200 feet along the project corridor and are located within the sidewalk. DFN and Qwest each have a single cabinet. Both the DFN and Qwest cabinets are located behind the sidewalk on the east side of SE Main Street between SE Cass Avenue and SE Oak Street. An easement would be required for these cabinet locations. Additionally, DFN and Qwest pull boxes are located every 200 feet along the utility corridor in the roadway.

Right-of-Way/Easement Acquisition

Easement acquisition will be required based on the Conceptual Design included with this report. This study identified preferred locations for transformers on the east side of SE Main Street; generally the transformers are on private property in parking lots or landscaped areas. By thus locating the transformers away from the street, the undergrounding is able to achieve a more appealing and aesthetic appearance. Also, due to the size of the transformers (approximately 5 feet wide by 5 feet deep by 4 feet high) and their clearance requirements, potential locations within the right-of-way are limited.

Easement acquisition will vary for each property. Property owners who favor the undergrounding project may readily accept easements for transformers. Others may discourage transformer placement on their property. If easements cannot be obtained, MSA has identified alternative feasible transformer locations.

Coal Chute Abandonment

The feasibility study identified 3 large sidewalk access hatches that at one point in time may have been used as coal chutes. Two additional sidewalk hatches were identified that are considerably smaller and are currently not used as access points. During the field verification, the property owner of the Kohlhagen apartments located at 911 SE Lane Avenue indicated their access hatch is used for maintenance access and equipment delivery. The

proposed corridor, secondary power, and communication facilities identified in the conceptual design will not impact any of the sidewalk accesses.

Restoration Requirements

As previously indicated in the Design Criteria, the City would require half-street improvements to the asphalt roadway with the proposed roadway corridor. In addition to the asphalt restoration, impacted concrete sidewalk panels would be replaced. No partial panel replacements or patches would be permitted. The entire sidewalk, however, would not be replaced under the current conceptual design, as only limited portions of it would be impacted by installation of the service connections.

Special Construction Practices

Trenchless methods (horizontal directional drilling, boring, etc) are recommended for certain areas within the project. These methods should be considered a viable option as it has the advantage of minimizing surface impacts resulting from excavation especially in areas where pipe installations are directly adjacent or between buildings in relatively close confines. For example, trenchless methods are recommended for Pacific Power conduit installation in the back lot area between SE Oak Avenue and SE Douglas Avenue. The most cost effective and suitable trenchless method will be determined during the design phase of the project.

Due to the age and condition of the sidewalk and roadway in the remainder of the project area, open trench construction methods are likely the most economical and reasonable to use.

Street Lighting

The existing street lights along SE Main Street are mounted on the existing utility poles. As the existing utility poles will be removed as part of the utility undergrounding, the street lights would be replaced on new street light poles. This study assumes that such poles would be similar to the existing decorative street lighting as used on adjacent streets in downtown Roseburg. Poles are anticipated to be located at approximate 100-feet spacing, on alternating sides of the street.

Additional Considerations

Street amenities can compliment utility undergrounding projects. Although the undergrounding is the main objective, further street beautification can be achieved by installing items such as decorative benches, decorative planters and trash receptacles, street artwork, and green initiatives. Short- and long-term goals as described in the Downtown Roseburg Master Plan include such items. While specific amenities such as streetscape and decorative planter boxes are beyond the scope of this study, a budgetary cost estimate for such amenities are included here for the City's consideration.

The City may wish to consider additional paving on SE Main Street beyond the required half-street improvements, as one of the medium-term goals of the Downtown Roseburg Master Plan is to install a new slurry coat on all downtown streets. A cost benefits analysis could be completed during the design phase to determine if either recommendation should be pursued as part of this project.

As noted previously, all utilities with underground facilities within the project area would be notified well in advance of construction. They would then have the opportunity to coordinate any planned improvements with the subject project, in order to minimize future disturbance to the roadway and sidewalk.

SECTION 5
COST ESTIMATE

General

This section discusses the estimated cost of converting the City of Roseburg's (City) SE Main Street overhead utilities to underground facilities between SE Mosher Avenue and SE Douglas Avenue. As discussed in the previous section, two corridor alternatives were considered. The roadway alternative was selected, a conceptual design was developed for the selected alternative, and a cost estimate for this corridor was prepared.

Recommended Utility Corridor Cost Estimate

A conceptual level cost estimate (based on 2010 cost data) for undergrounding overhead utilities along SE Main Street between SE Mosher Avenue and SE Douglas Avenue is presented in Appendix E. The estimate includes anticipated costs to convert overhead utilities to underground, including such related items as surface restoration and new street lighting. The cost estimate represents opinion of cost based on the conceptual design, acknowledging that final costs of the project will likely vary depending on the specific features incorporated into the final design.

The total estimated construction cost for the proposed conceptual design is $2,800,000, including a 30 percent contingency. The cost estimate has been divided into subtotals for general construction bid items common to the project, and bid items specific to individual utilities. The subtotals are provided so that a comparison can be readily made between costs associated with individual utilities. Engineering for design, bidding services, and construction engineering are not included in the cost estimate. An estimated cost for optional design items and amenities is included in the estimate for informational purposes; the cost of such amenities is not included in the total estimated cost listed above. Elements of the estimate peculiar to undergrounding are discussed below.

Typical Private Property Conversion Cost

Specific conversion costs for connections to private properties will vary according to specific conditions encountered at each location, and will be determined during the final design phase. For this estimate, an average connection cost is used. Note that properties will receive connections to each of the three communications providers, as each utility has indicated a service connection will be provided to each property. Of course, many properties have more than one electrical meter, due to multiple tenants.

The average cost used for communication connections considers the design criteria provided by each of the three communications utilities. For purposes of this feasibility study a cost of $1,500 per communications utility, per property connection has been used. Based on our field

investigations, there are approximately 38 properties that would require communication connections to each of the three providers.

An average cost of $2,500 per meter has been included for reconnecting electrical services on private property. As indicated in the design criteria and in other parts of this report, the existing three-phase power does not meet current industry standards. Therefore a different power supply will be utilized creating potential conflicts with existing electrical equipment. A thorough door-to-door evaluation of existing equipment would be required to identify specific private property costs. The evaluation would determine whether new equipment (electrical motors) would be required, or whether adjustments, such as rewiring existing equipment, could be completed. This average cost of $2,500 per meter will allow for work required behind the meter to restore service. This potential cost for work behind the meter could be assigned to the property owner or tenant, but often such costs are assumed by the project in order to develop and maintain public support, and they are included in the estimate provided.

Cost Sharing

Typically, utility companies have agreements in place with local, regional, and state governments that identify utility company requirements and obligations with respect to their facilities located within the public right-of-way. The City of Roseburg and the utilities have such franchise agreements in place. These requirements can address relocation, removal and upgrades. For this feasibility study, franchise agreements were reviewed for power, telecommunications, cable TV and gas (Pacific Power, Qwest, Comspan Communications, Douglas Fast Net, and Avista). There is no franchise agreement for sanitary sewer. As it is desirable that sanitary sewer flow by gravity and therefore has limited flexibility when considering relocations, it is assumed other utilities would relocate if in conflict with sewer.

The agreements for power, telecommunications, cable TV, and gas all require utilities to relocate at the utility's expense when requested to do so by the City, when such relocation is considered to be in the public's best interest. With the exception of Qwest, the City franchise agreements do not specifically address the issue of overhead to underground conversion projects that are initiated by the City. The Qwest franchise agreement does indicate that if the City requires the existing facilities to be placed underground, then Qwest shall do so at its own expense provided the City also *requires telephone and electric utilities to underground*. However, the agreement also indicates that if the electric company is reimbursed for any portion of the project, the same reimbursement shall be provided to Qwest. Based on our experience with similar underground conversion projects, some cost sharing between the City and private utilities can typically be accommodated. An agreement with each utility, including a cost estimate and cost sharing formula, should be negotiated before project construction.

Pacific Power has communicated their typical cost sharing arrangement for undergrounding projects. The estimate incorporates this arrangement. Pacific Power staff noted that they would provide electrical engineering designs for undergrounding conversion. Pacific Power would also assume the cost of supplying and installing all of the conductor and transformers. Conduit,

padmount bases, vaults, and pull boxes would be supplied and constructed by the project. Switch gear installation (padmount bases and switchgear equipment) would be the responsibility of the project. In past project experience of Murray, Smith & Associates, Inc., the utility is typically responsible for the removal of the overhead utilities after the conversion. Pacific Power has given preliminary indication that such removal costs would be a project responsibility.

The remaining overhead utilities, including Qwest, Comspan Communications, and Douglas Fast Net have indicated a willingness to assume financial participation similar to Pacific Power. The communication utilities' cost responsibilities would likely include supplying and installing all cable and wiring, with conduits, cabinets, and pull boxes to be constructed by the project. This is the basis of the cost estimate.

SECTION 6
CONCLUSION

Murray, Smith & Associates, Inc. (MSA) in collaboration with City of Roseburg (City) engineering staff, have completed a feasibility study for undergrounding overhead utilities along an approximate 1,800-foot section of SE Main Street, in downtown Roseburg. Base mapping and utility as-built drawings were collected from available sources, compiled into a project base map, and used to perform an alternatives analysis. A preferred corridor for the relocated utility facilities was selected, and a conceptual undergrounding design and corresponding estimate were prepared.

Based on this feasibility study, the proposed undergrounding can be accomplished in a manner that allows the relocated overhead utilities to be installed in a manner that is compatible with existing underground utility facilities and underground voids such as coal chutes and basement accesses. The proposed underground corridor is located in the SE Main Street roadway. Some above ground facilities (cabinets, transformers, meters, and switchgears) would be located within project corridor.

The estimated cost of such improvements is $2,800,000.

Next Steps

Clearly the estimated cost would represent a significant investment for the City. MSA will attend a Public Works Commission meeting and a City Council meeting to present and discuss the project with the these representatives of the community. It is anticipated that further discussion will occur that could include political representatives, City engineering and maintenance staff, and community stakeholders. Possibly, grants to fund a portion of the construction cost could be pursued.

Assuming a decision is reached to develop the project further, we recommend the following next steps:

- Preliminary and Final Design. Specific requirements for design items beyond the scope of this feasibility study would be determined and incorporated into construction documents for bidding.

- Public outreach (informational mailers, open houses) to community stakeholders to ensure that the design meets community expectations and to build public support for the project.

- Further coordination with all affected utilities to define specific locations of all utility structures and facilities (cabinets, transformers, meters, and service connections) as well as additional design details.

- Negotiation of specific cost sharing agreements with utilities.

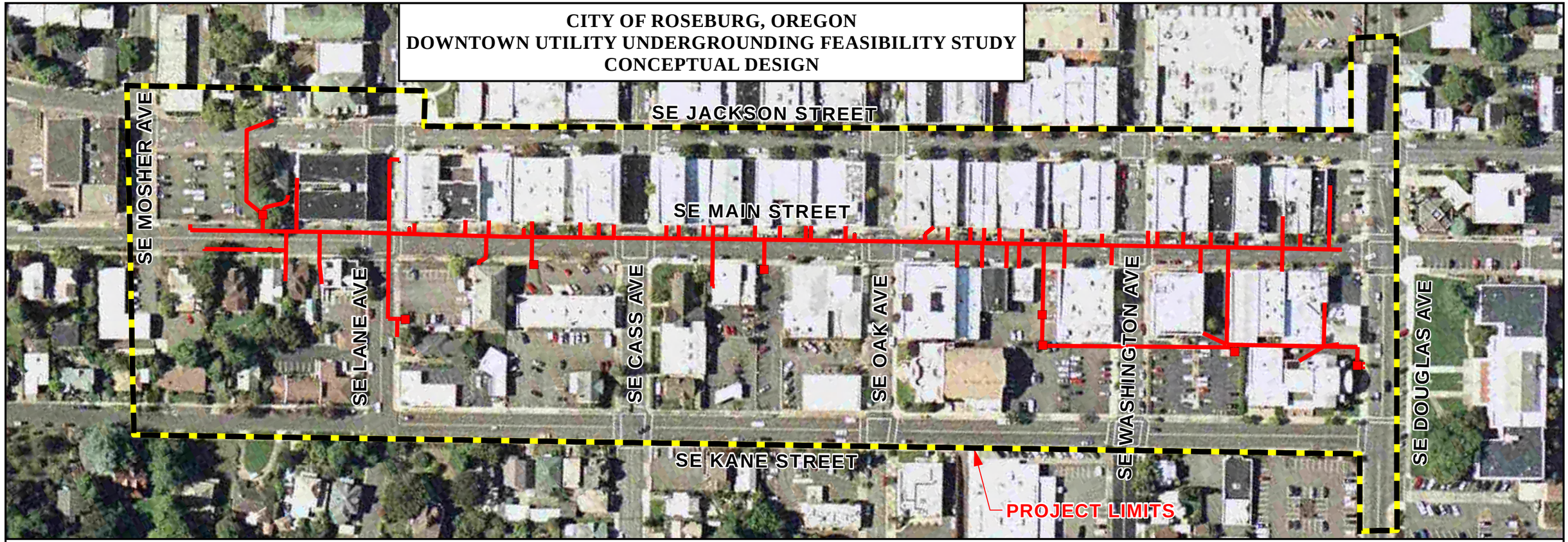
- Verification of existing pipe materials, sizes and vertical and horizontal locations through test hole (pothole) activities at critical locations.

- A geotechnical investigation to verify pavement section, soil and subgrade types, potential contamination, and water table depths.

MSA appreciates the opportunity to collaborate with the City of Roseburg on this important study, and we look forward to further discussions in this regard.

APPENDIX A

CITY OF ROSEBURG, OREGON
DOWNTOWN UTILITY UNDERGROUNDING FEASIBILITY STUDY
CONCEPTUAL DESIGN



LEGEND

(P)	POWER COMPANY UTILITY
(C)	COMMUNICATION COMPANY UTILITY
1X	NUMBER OF GANGED/GROUPED METERS
P	+225 KVA TRANSFORMER. APPROXIMATE SIZE 57"Wx63"Dx49"H
P	25 KVA TRANSFORMER. APPROXIMATE SIZE 37"Wx36"Dx25"H
S	PAD MOUNTED SWITCHGEAR. APPROXIMATE SIZE 78"Wx24"Dx98"H
C	PAD MOUNTED CABINETS. APPROXIMATE SIZE 24"Wx12"Dx57"H
	UNDERGROUND UTILITY CORRIDOR OPTION
	PROPOSED POWER POLE
	PROPOSED BOLLARD
	PROPOSED EASEMENT
	EXISTING GAS LINE
	EXISTING ROOF DRAIN
	EXISTING STORM DRAIN
	EXISTING SANITARY SEWER MAIN
	EXISTING TELEPHONE
	EXISTING WATER MAINS
	EXISTING WATER SERVICE
	GAS VALVE
	STORM DRAIN MANHOLE
	CATCH BASIN
	SANITARY SEWER MANHOLE
	TELEPHONE VAULT
	LIGHT POLE - EXISTING
	POWER POLE
	FIRE HYDRANT
	WATER METER
	WATER VALVE
	ACCESS HATCH
	EXISTING TREES

N

150 0 150

SCALE IN FEET

COVER SHEET

Conceptual Design

City of Roseburg, Oregon
Downtown Utility Undergrounding
Feasibility Study

December 2010

Murray, Smith & Associates, Inc.
Engineers/Planners
175 West B Street, Bldg K-2 PHONE 541.741.2075
Springfield, Oregon 97477 FAX 541.744.3075

10-1139.403

G:\PDX_Projects\10\1139.403 - Conceptual Relocation Designs & Estimates\CAD\GIS\FINAL SHEETS\COVER SHEET.mxd 12/1/2010 4:43:35 PM DKH

CITY OF ROSEBURG, OREGON
DOWNTOWN UTILITY UNDERGROUNDING FEASIBILITY STUDY
CONCEPTUAL DESIGN

TO EXISTING POWER POLE ON SE JACKSON ST
1-6" PVC(P)
PROPOSED 14' EASEMENT
COMSPAN CABINET
9-4" PVC(C) 1-3" PVC(C)
3xBOLLARDS
1-4" PVC(P) 4-2" PVC(C)
225 KVA TRANS
3-4" PVC(P)
24X
1-4" PVC(P) 4-2" PVC(C)
26X
4X
2-4" PVC(P) 8-2" PVC(C)
9-4" PVC(C) 1-3" PVC(C) 12-2" PVC(C)
4-2" PVC(P)
COMSPAN CABINET
SEE SHEET 6
9-4" PVC(C) 1-3" PVC(C)
4X
25 KVA TRANS
2xBOLLARDS
CONSTRUCT CURB EXTENSION
1-4" PVC(P) SINGLE PHASE
8-2" PVC(C) 2-3" PVC(P)
1X 1X
1X
1-4" PVC(P) 4-2" PVC(C)
1-6" PVC(P) 1-3" PVC(C) 6-4" PVC(C) 1-2" PVC(C)
SEE SHEET 6

SE MOSHER AVE
SE LANE AVE
SE MAIN ST
PARKING
S/W
DWY
875
825
911
913
869
841
831
829
809
D4147 RIM=520.94 IE=514.94
D4123 RIM=502 IE=496.7

30 0 30
SCALE IN FEET

SHEET 1

Conceptual Design

City of Roseburg, Oregon
Downtown Utility Undergrounding Feasibility Study

December 2010

Murray, Smith & Associates, Inc. Engineers/Planners
175 West B Street, Bldg 6-2 PHONE 541.741.2075
Springfield, Oregon 97477 FAX 541.744.3075

10-1139.403

G:\PDX_Projects\10\1139.403 - Conceptual Relocation Designs & Estimates\CAD\GIS\FINAL SHEETS\SHEET 1.mxd 12/1/2010 4:45:34 PM DKH

CITY OF ROSEBURG, OREGON
DOWNTOWN UTILITY UNDERGROUNDING FEASIBILITY STUDY
CONCEPTUAL DESIGN

4-2" PVC(C)
4-2" PVC(C)
COMSPAN CABINET
4-2" PVC(C)
4-2" PVC(C)
COMSPAN CABINET
4-2" PVC(C)
1-4" PVC(P)
4-2" PVC(C)
1-6" PVC(P)
11-4" PVC (P&C)
1-3" PVC(C)
9-2" PVC(C)
1-4" PVC(P)
4-2" PVC(C)
COMSPAN CABINET
4-2" PVC(C)
4-2" PVC(C)
1-4" PVC(P)
4-2" PVC(C)
SE CASS AVE
SE MAIN ST
1-2" PVC(P)
1-4" PVC(P)
2-6" PVC(P)
2-4" PVC(P)
4-2" PVC(C)
1-6" PVC(P)
11-4" PVC (P&C)
1-3" PVC(C)
10-2" PVC(C)
300 KVA TRANS
EASEMENT
EXISTING UNDERGROUND,
CONVERT EXISTING METERS
ALTERNATE
TRANSFORMER
LOCATION
4-2" PVC(C)
D4170
RIM=501.41
IE=0
D4167
RIM=501.15
IE=494.58
DC4277
RIM=501.08
IE=495.88
S/W
DWY
PARKING
SD
8"SS
10"SS
15"SS
4"G
6"CI W
1"G
DR
4X
6X
1X
C
P
T
S
749
741
729
719
713
711
709
649
740
720
915
920
753
751
727
725
723
1019
1024
651

30 0 30
SCALE IN FEET

SHEET 2

Conceptual Design

City of Roseburg, Oregon
Downtown Utility Undergrounding
Feasibility Study

December 2010

Murray, Smith & Associates, Inc.
Engineers/Planners
175 West B Street, Bldg A-2 PHONE 541.741.2075
Springfield, Oregon 97477 FAX 541.744.3875

10-1139.403

G:\PDX_Projects\10\1139.403 - Conceptual Relocation Designs & Estimates\CAD\GIS\FINAL SHEETS\SHEET 2.mxd 12/2/2010 10:18:55 AM DKH

CITY OF ROSEBURG, OREGON
DOWNTOWN UTILITY UNDERGROUNDING FEASIBILITY STUDY
CONCEPTUAL DESIGN

4-2" PVC(C)
4-2" PVC(C)
8-2" PVC(C)
1-4" PVC(P)
8-2" PVC(C)
4-2" PVC(C)
COMSPAN CABINET
1-4" PVC(P)
4-2" PVC(C)
DFN & QWEST PULL BOX, TYP EVERY 200'
4-2" PVC(C)
2-4" PVC(P)
COMSPAN CABINET
4-2" PVC(C)
1-4" PVC(P)
4-2" PVC(C)
4-2" PVC(C)
4-3" PVC(P&C)
18-2" PVC(C)
16-4" PVC(C)
3-4" PVC(P)
2-6" PVC(P)
1-6" PVC(P)
12-4" PVC (P&C)
1-3" PVC(C)
14-2" PVC(C)
DFN & QWEST CABINETS
EASEMENT
300 KVA TRANS
1-4" PVC(P)
4-2" PVC(C)
4-2" PVC(C)
4-4" PVC(C)
1-6" PVC(P)
12-4" PVC (P&C)
1-3" PVC(C)
16-2" PVC(C)
4-2" PVC(C)
537 SE MAIN
COMSPAN FACILITY
SE MAIN ST
SE OAK AVE
DC4276
RIM=493.55
IE=490.05
DC6203
RIM=494.06
IE=0
10"SD
12"SD
15"SD
10"SS
12"SS
8"SS
6"CI W
4"G
1"G
3/4"G
0"G
DR
T
S
S/W
DWY
PARKING
628
626
629
619
949
950
567
563
563
555
547
545
543
525
523
1012
1014
1016
1022
6X
5X
3X
4X
1X
P

30 0 30
SCALE IN FEET

SHEET 3

Conceptual Design

City of Roseburg, Oregon
Downtown Utility Undergrounding
Feasibility Study

December 2010

Murray, Smith & Associates, Inc.
Engineers/Planners
175 West B Street, Bldg K-2 PHONE 541.741.2075
Springfield, Oregon 97477 FAX 541.744.3075

10-1139.403

G:\PDX_Projects\10\11 39.403 - Conceptual Relocation Designs & Estimates\CAD\GIS\FINAL SHEETS\SHEET 3.mxd 12/1/2010 10:20:32 AM DKH

CITY OF ROSEBURG, OREGON
DOWNTOWN UTILITY UNDERGROUNDING FEASIBILITY STUDY
CONCEPTUAL DESIGN

30 0 30
SCALE IN FEET

1-4" PVC(P)
4-2" PVC(C)

COMSPAN CABINET

1-2" PVC(P)

4-2" PVC(C)

10-4" PVC(P&C)
1-3" PVC(C)
12-2" PVC(C)

1-4" PVC(P)
4-2" PVC(C)

COMSPAN CABINET

1-4" PVC(P)

1-4" PVC(P)
4-2" PVC(C)

4-2" PVC(C)

COMSPAN CABINET

4-2" PVC(C)

1-4" PVC(P)
4-2" PVC(C)

1-2" PVC(P)

4-2" PVC(C)

EASEMENT

5-4" PVC(P)
1-6" PVC(P)

EASEMENT

1-6" PVC(P)
CONDUITS TO BE
INSTALLED BY BORING
OR OPEN-CUT

300 KVA TRANSFORMER

4-2" PVC(C)

EXISTING UNDERGROUND
POWER

1-3" PVC(P)

3-4" PVC(P)
1-3" PVC(P)

EASEMENT

SEE SHEET 5

SEE SHEET 5

SE MAIN ST

SE WASHINGTON AVE

DC4275
RIM=488.45
IE=482.25

PARKING

DWY

S/W

SHEET 4

Conceptual Design

City of Roseburg, Oregon
Downtown Utility Undergrounding
Feasibility Study

December 2010

Murray, Smith & Associates, Inc.
Engineers/Planners

10-1139.403

G:\PDX_Projects\10\1139.403 - Conceptual Relocation Designs & Estimates\CAD\GIS\FINAL SHEETS\SHEET 4.mxd 12/1/2010 10:29:26 AM DKH

CITY OF ROSEBURG, OREGON
DOWNTOWN UTILITY UNDERGROUNDING FEASIBILITY STUDY
CONCEPTUAL DESIGN

30 0 30
SCALE IN FEET

1-4" PVC(P)
4-2" PVC(C)

4-2" PVC(C)

COMSPAN CABINET

1-4" PVC(P)
4-2" PVC(C)

1-4" PVC(P)
4-2" PVC(C)

4-2" PVC(C)

STUBS

4-2" PVC(C)

1-3" PVC(P)

EASEMENT

3-4" PVC(P)
1-3" PVC(P)

1-4" PVC(P)

1-6" PVC(P)
1-4" PVC(P)
CONDUITS TO BE INSTALLED BY BORING

1-4" PVC(P)
CONDUIT TO BE INSTALLED BY BORING

1-4" PVC(P)

EASEMENT

300 KVA TRANSFORMER

EASEMENT

1-6" PVC(P)
CONDUITS TO BE INSTALLED BY BORING OR OPEN-CUT

SEE SHEET 4

1-4" PVC(P)

1-6" PVC(P)
APPROX 630'

CONDUIT TO BE INSTALLED BY BORING AS PART OF SEPERATE PROJECT

1-6" PVC(P)
APPROX 410'

SE MAIN ST

SE DOUGLAS AVE

DC4274
RIM=477.85
IE=472.75

PARKING
DWY
S/W
GRASS
COURTHOUSE

SHEET 5

Conceptual Design

City of Roseburg, Oregon
Downtown Utility Undergrounding
Feasibility Study

December 2010

Murray, Smith & Associates, Inc.
Engineers/Planners
175 West B Street, Bldg K-2 PHONE 541.741.2075
Springfield, Oregon 97477 FAX 541.744.3875

10-1139.403

G:\PDX_Projects\10\11 39.403 - Conceptual Relocation Designs & Estimates\CAD\GIS\FINAL SHEETS\SHEET 5.mxd 12/1/2010 4:49:39 PM DKH

CITY OF ROSEBURG, OREGON
DOWNTOWN UTILITY UNDERGROUNDING FEASIBILITY STUDY
CONCEPTUAL DESIGN

1-6" PVC(P)
1-3" PVC(C)
6-4" PVC(C)
1-2" PVC(C)

575 SECTIONAL CABINET (P)

PROPOSED POWER POLE

PARKING

9-4" PVC(C)
1-3" PVC(C)

COMSPAN CABINET

PROPOSED POWER POLE

SE MAIN ST

SE JACKSON ST

SE LANE AVE

D4123
RIM=502
IE=498.70001

SCALE IN FEET
30 0 30

SHEET 6

Conceptual Design

City of Roseburg, Oregon
Downtown Utility Undergrounding Feasibility Study

December 2010

Murray, Smith & Associates, Inc.
Engineers/Planners

10-1139.403

G:\PDX_Projects\10\11 39\403 - Conceptual Relocation Designs & Estimates\CAD\GIS\FINAL SHEETS\SHEET 6.mxd 12/1/2010 4:50:37 PM DKH

APPENDIX B

900 S.E. Douglas Avenue
Roseburg, Oregon 97470

Phone (541) 672-7701
Fax (541) 673-2856

City of Roseburg

10-1139-402
July 27, 2010

Re: City of Roseburg Downtown Utility Undergrounding Feasibility Study

Dear Main Street property owner/lessee:

As part of an on-going downtown revitalization program, the City of Roseburg is conducting a study to determine the feasibility of converting overhead utilities (including electrical, cable, and phone) to underground. The study area is along SE Main Street between SE Mosher Avenue and SE Douglas Avenue.

The study will identify potential underground corridors in which to relocate existing overhead utilities. In order to provide accurate results, the study will identify features that may affect the usability of the corridor. Such features could include coal chutes, basements or other below ground features that extend beyond the building footprint, into the sidewalk or roadway areas.

As your property has been identified to be within the study area, you are asked to respond if such features exist. If there is doubt about whether a feature of your property would affect the study, a representative from Murray, Smith and Associates will be made available for inspection.

We appreciate your assistance and ask that you complete the requested information below to assist in the revitalization of your city.

Thank you.

---------- Remove Here ----------

Property may affect undergrounding corridor:

Property Owner/Lessee Name: _____
Address: _____
Identified Feature: _____
Contact Phone Number: _____

Please return to:
Attention: Jeff Nelson, City of Roseburg Public Works
900 SE Douglas Avenue, Roseburg, OR 97470

City of Roseburg Downtown Utility Underground Feasibility Study

Property Owner Confirmation For Coal Chutes and Basements Extending Beyond Building Envelope Into Right-Of-Way

Property Address	Contact		Date Responded	Identified Feature Confirmation	Contacted (Yes/No)	Remarks
	Name	Phone				
1021 SE Washington Avenue, Roseburg, OR 97470	Ken W. Clark	541-430-4915	7/29/2010	None known to owner		
1031 SE Washington Avenue, Roseburg, OR 97470	Ken W. Clark	541-430-4915	7/29/2010	None - Private office located upstairs		
751 SE Main Street, Roseburg, OR 97470	Don Martinez	541-733-71021	7/29/2010	None known to owner		
505 SE Main Street, Roseburg, OR 97470	Umpqua Valley Public Defender	541-987-5344	7/29/2010	None known to owner		
439 SE Main Street, Roseburg, OR 97470	William & Teresa Clemons	541-492-6877	7/29/2010	None known to owner		
523/525 SE Main Street, Roseburg, OR 97470	Alley Liles - Land & Water	541-672-0343	7/30/2010	None known to owner		
517 SE Jackson Street, Roseburg, OR 97470	Margo Moore - Bridal Shop	541-957-1550	7/30/2010	None known to owner		
611 SE Jackson Street, Roseburg, OR 97470	Don Ramberg - Roseburg Glass	N/A	8/2/2010	Basement may extend into sidewalk	Yes	No Conflict
613 SE Jackson Street, Roseburg, OR 97470	Don Ramberg - Roseburg Glass	N/A	8/2/2010	Basement may extend into sidewalk	Yes	No Conflict
419 SE Main Street, Roseburg, OR 97470	Wendy Reeves - The Copy Center	541-672-3497	8/2/2010	Unknown		
619 SE Main Street, Roseburg, OR 97470	Dave Hammis - US Bank	503-275-5089	8/2/2010	No comment		
445 SE Main Street, Roseburg, OR 97470	Brent Hinsley - Umpqua Bank	541-440-3962	8/2/2010	Basement		
549 SE Jackson Street, Roseburg, OR 97470	Gary & Janice Quist Roseburg Book & Stationary	541-673-5356	8/2/2010	Basement	Yes	No Conflict
911 SE Lane Avenue, Roseburg, OR 97470	Michael Horton - Kohlhagen Properties, LLC	541-430-8503	7/30/2010	Sidewalk Trap Door (steel), 6' Deep, Boiler Service Access	Yes	Sidewalk Hatch
505 SE Main Street, Roseburg, OR 97470	Larry & Ellen Williams - Living Trust	541-440-9657	8/3/2010	None - No basement, Slab Floor		
507 SE Jackson Street, Roseburg, OR 97470	James Walker	541-440-9617	8/3/2010	Basement Chute - Opening from Main Street Sidewalk	Yes	No Conflict
509 SE Jackson Street, Roseburg, OR 97470	James Walker	541-440-9617	8/3/2010	Basement Chute - Opening from Main Street Sidewalk	Yes	No Conflict
510 SE Jackson Street, Roseburg, OR 97470	James Walker	541-440-9618	8/4/2010	Basement Chute - Opening from Main Street Sidewalk	Yes	Sidewalk Hatch
563 SE Main Street, Roseburg, OR 97470	Mark Vincent	541-580-8232	8/4/2010	No comment		
523/525 Main Street, Roseburg, OR 97470	Francis - Land and Water	541-673-7020	8/9/2010	Please contact	Yes	No Conflict
643 Jackson Street, Roseburg, OR 97470	Emily (Manager) - Rain Tree Rentals	541-677-0299	8/12/2010	Unsure of any underground structure - please contact		
518 SE Main Street, Roseburg, OR 97470						Letter Returned - No Such Number
547 SE Main Street, Roseburg, OR 97470						Letter Returned - No Such Number
753 SE Main Street, Roseburg, OR 97470						Letter Returned - No Such Number
626 SE Main Street, Roseburg, OR 97470						Letter Returned - No Such Number
417 SE Main Street, Roseburg, OR 97470						Letter Returned - No Such Number
545 SE Main Street, Roseburg, OR 97470						Letter Returned - No Such Number
440 SE Main Street, Roseburg, OR 97470						Letter Returned - No Such Number
523 SE Main Street, Roseburg, OR 97470						Letter Returned - No Such Number
448 SE Main Street, Roseburg, OR 97470						Letter Returned - No Such Number
925 SE Main Street, Roseburg, OR 97470						Letter Returned - No Such Number
915 SE Main Street, Roseburg, OR 97470						Letter Returned - No Such Number
??? SE Main Street, Roseburg, OR 97470						Letter Returned - No Such Number
529 SE Jackson Street, Roseburg, OR 97470						Letter Returned - No Such Number
633 SE Jackson Street, Roseburg, OR 97470						Letter Returned - No Such Number
915 SE Cass Avenue, Roseburg, OR 97470						Letter Returned - No Such Number
1012 SE Oak Avenue, Roseburg, OR 97470						Letter Returned - No Such Number
651 SE Main Street, Roseburg, OR 97470						Letter Returned - No Such Number
468 SE Main Street, Roseburg, OR 97470						Letter Returned - No Such Number
537 SE Jackson Street, Roseburg, OR 97470	Oliveros, Julio Anaya Trust					Not Deliverable as Addressed
645 SE Jackson Street, Roseburg, OR 97470						Vacant
1012 SE Oak Avenue, Roseburg, OR 97470 - Suite 200						Vacant
740 SE Main Street, Roseburg, OR 97470 - Suite 203						Vacant
727 SE Main Street, Roseburg, OR 97470						Vacant
507 SE Jackson Street, Roseburg, OR 97470						Vacant
465 SE Jackson Street, Roseburg, OR 97470						Vacant
649 SE Jackson Street, Roseburg, OR 97470						Vacant
1014 SE Oak Avenue, Roseburg, OR 97470						Vacant
1016 SE Oak Avenue, Roseburg, OR 97470						Vacant
603 Jackson Street, Roseburg, OR 97470						Vacant
420 SE Main Street, Roseburg, OR 97470						Vacant
427 SE Main Street, Roseburg, OR 97470						Vacant
447 Jackson Street, Roseburg, OR 97470						Letter Returned - No Such Number
403 Jackson Street, Roseburg, OR 97470						Vacant
1022 SE Oak Avenue, Roseburg, OR 97470						Vacant
1019 SE Douglas Avenue, Roseburg, OR 97470						Vacant
1017 SE Washington Avenue, Roseburg, OR 97470						Attempted - Not Known
555 SE Main Street, Roseburg, OR 97470						Vacant
515 SE Main Street, Roseburg, OR 97470						Vacant
949 SE Oak Avenue, Roseburg, OR 97470						Vacant
647 SE Jackson Street, Roseburg, OR 97470						Vacant
910 SE Washington Avenue, Roseburg, OR 97470						Vacant
911 SE Washington Avenue, Roseburg, OR 97470						Vacant
729 SE Jackson Street, Roseburg, OR 97470	Redeemer's Fellowship - Dave Sherwood	541-680-1706	8/13/2010	Not applicable - basement is within building blueprint		

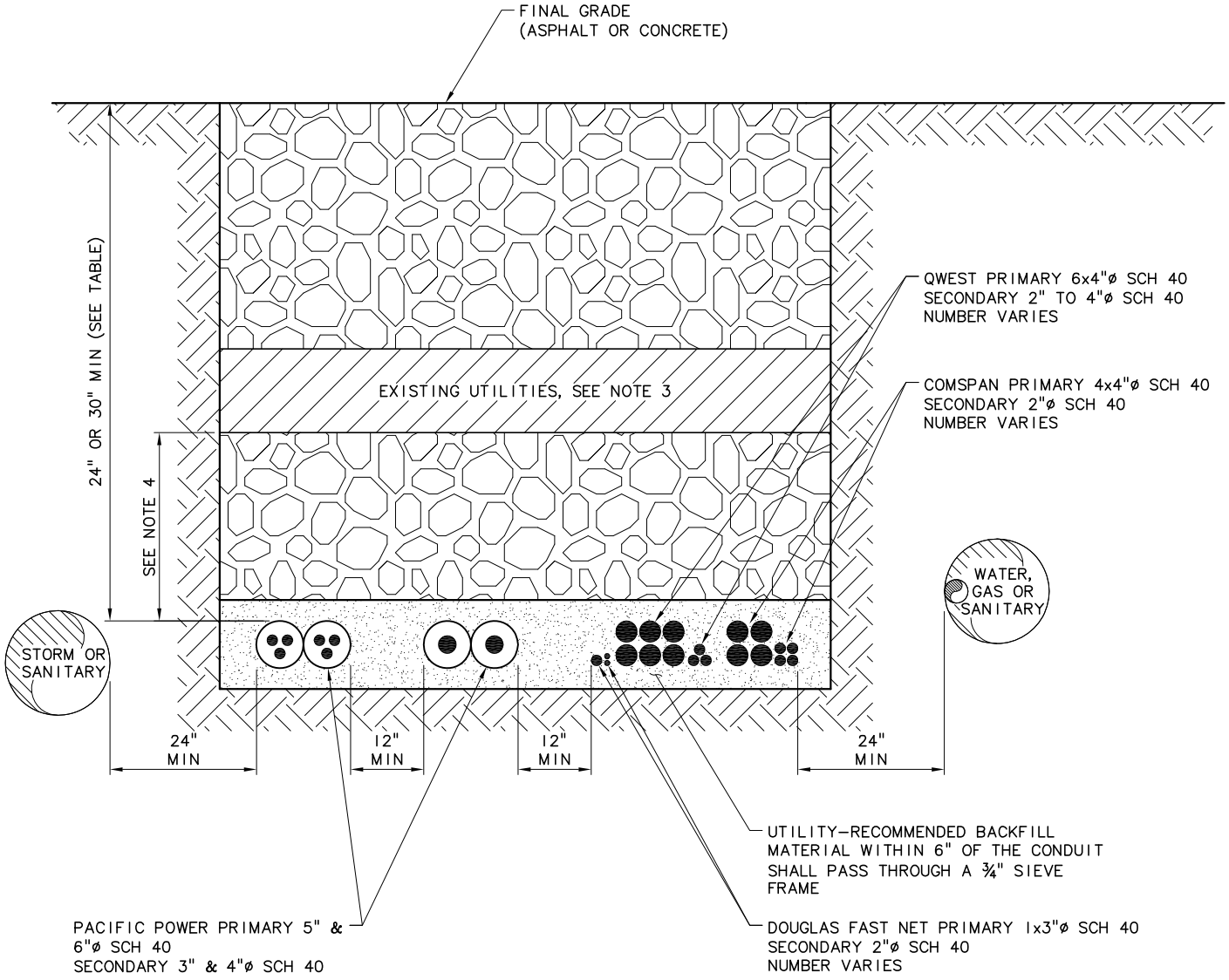
Kohlhagen Apartments - 911 SE Lane Avenue

Mystic Earth - 507 / 510 SE Main Street

Elks Lodge – 749 SE Jackson Street

Masonic Laurel Temple Lodge - 920 SE Cass Avenue

949 SE Oak Avenue



NOTES:

1. FOR JOINT WITH GAS AND POWER, CONTACT PACIFIC POWER FOR APPROVAL.

2. WATER, SANITARY SEWER, STORM SEWER AND OTHER DRAINAGE LINES WILL NOT SHARE A COMMON TRENCH WITH NON–ELECTRIC UTILITIES.

3. EXISTING UTILITIES CROSSING INCLUDE WATER, SANITARY AND STORM SEWER, GAS AND OTHER UTILITIES.

4. FOR COMSPAN COMMUNICATIONS CROSSINGS, A MINIMUM OF 12 INCHES ENCASED IN CONCRETE OR 24 INCHES ENCASED IN PACKED BACKFILL AS REQUIRED. ALL OTHER UTILITIES REQUIRE A MINIMUM 12 INCHES.

CONDUIT/CABLE	MINIMUM COVER	MINIMUM TRENCH DEPTH	MAXIMUM BURIAL DEPTH
PRIMARY	30"	36"	48"
SECONDARY/SERVICE	24"	30"	48"

LEGEND

- OTHER CABLE UTILITIES (TELEPHONE, CABLE TV)
- SECONDARY/SERVICE (CONDUIT/CABLE)
- PRIMARY CONDUIT/CABLE
- BACKFILL
- SELECT BACKFILL
- UNDISTURBED EARTH

MSA Murray, Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CONDUIT INSTALLATION DETAIL

SCALE:	NTS
APPVD:	–
DATE:	10–6–10
DWG NO.:	1

5 Clearances

This section provides information on required clearances for meter sockets, clear working space, overhead services and underground services.

5.1 Meter Clearances and Locations

The customer must provide suitable space and provisions for mounting a meter base at a location approved by the Power Company. Both the customer and the Power Company share an interest in providing a location of the utmost convenience to both parties for reading, testing, repairing, disconnecting and replacing meters.

All metering equipment shall be located so as to be accessible to Power Company employees and their equipment.

The Power Company will not install meters on mobile structures such as trailers, barges, cranes, dredges, draglines, mobile pumping equipment or floating dwelling units such as houseboats.

5.1.1 Meter Clearance Dimensions

The minimum unobstructed working space required in front of a single meter is 78" high, 36" wide, and 36" deep. The minimum working space required with use of current transformers is 78" high, 70" wide and 48" deep. Meters installed in a cabinet require a minimum space of 48" deep to open the cabinet door. For further detail, see NEC 110.26 A. Locate all meters and metering equipment at least 36" horizontally from a gas meter.

The center of any meter socket shall be set no more than 6' or no less than 4' above the finished grade or floor immediately in front of the meter, except for the center of meter sockets in pedestals set with a 42" minimum clearance above the finished grade. In installations with vertical three- or four-gang meter bases, the center of the lowest meter socket shall not be set less than 36" above the final grade.

Figures 5.1.1 and 5.1.2 illustrate the proper working space for meter installations.

5.1.2 Residential Meters

Install residential meters outdoors at a location acceptable to the Power Company. Locate the meter within 10 feet of the front (street) side of the residence, on the side of the residence closest to the Power Company's source, avoiding locations behind fences. Avoid installations near windows (see Figure 5.2.1 for clearance requirements). Never install the meter over window wells, steps in stairways, or in other unsafe or inconvenient locations. Keep shrubs and landscaping from obstructing access to the meter.

5.1.3 Non-Residential Meters

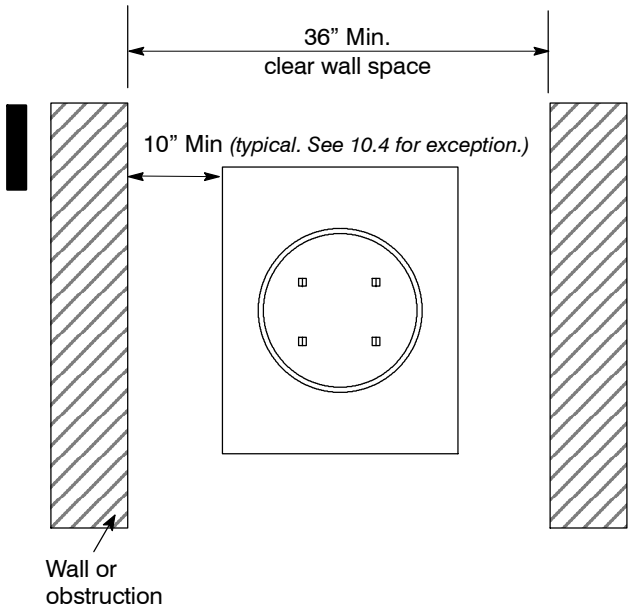
Locate non-residential meters outdoors. Any alternative location must have prior written approval by the Power Company and must allow for Power Company access to the meter during daytime working hours. Locked meter rooms or gated entries are not considered accessible. If prior approval is granted by the Power Company, a locked meter room or gated entry keyed for a Power Company lock or equipped with a Power Company-provided lock box is required. Doors of entryways to meter rooms shall open outward.

5.1.4 Access

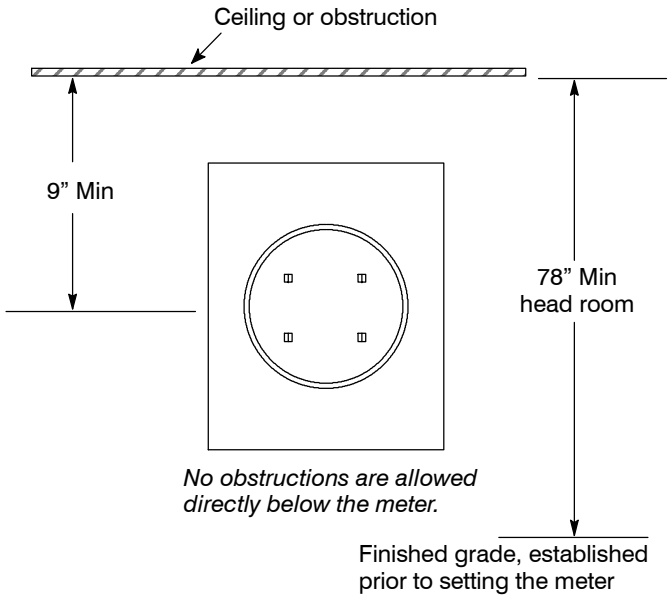
If a customer makes a meter inaccessible (in the opinion of the Power Company), for example, by installing a deck, fence or enclosure, the customer shall, at their expense, either modify the area to provide safe, unobstructed access to the meter, or move the meter socket to a location acceptable to the Power Company.

Devices mounted below the meter, with the exception of junction boxes, are not acceptable.

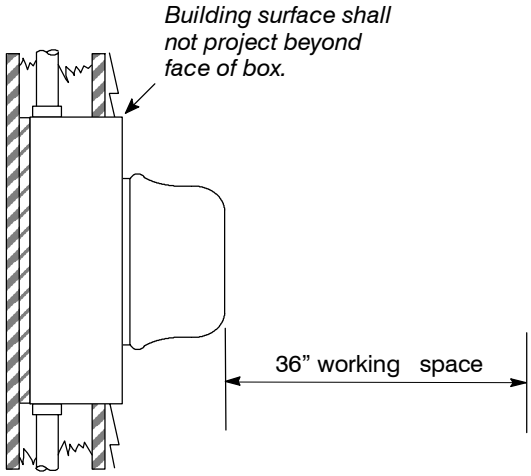
Figure 5.1.1 – Meter Socket Clearance Requirements



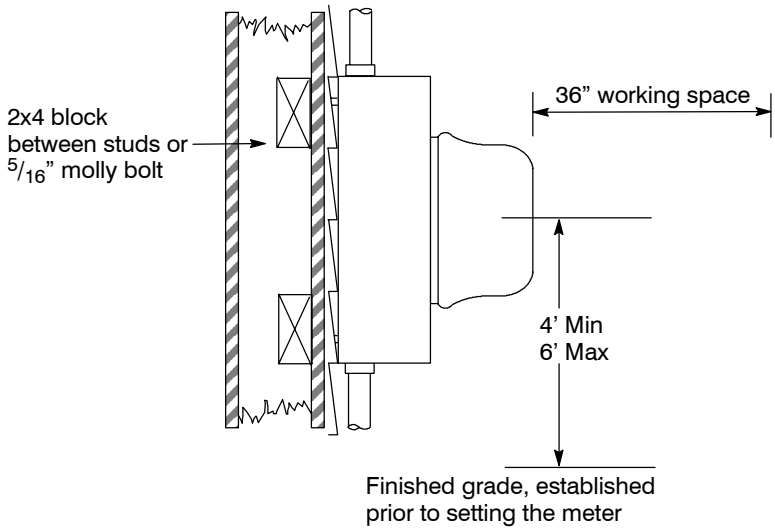
HORIZONTAL CLEARANCE
Flush or surface mount



VERTICAL CLEARANCE
Flush or surface mount



FLUSH MOUNT METER



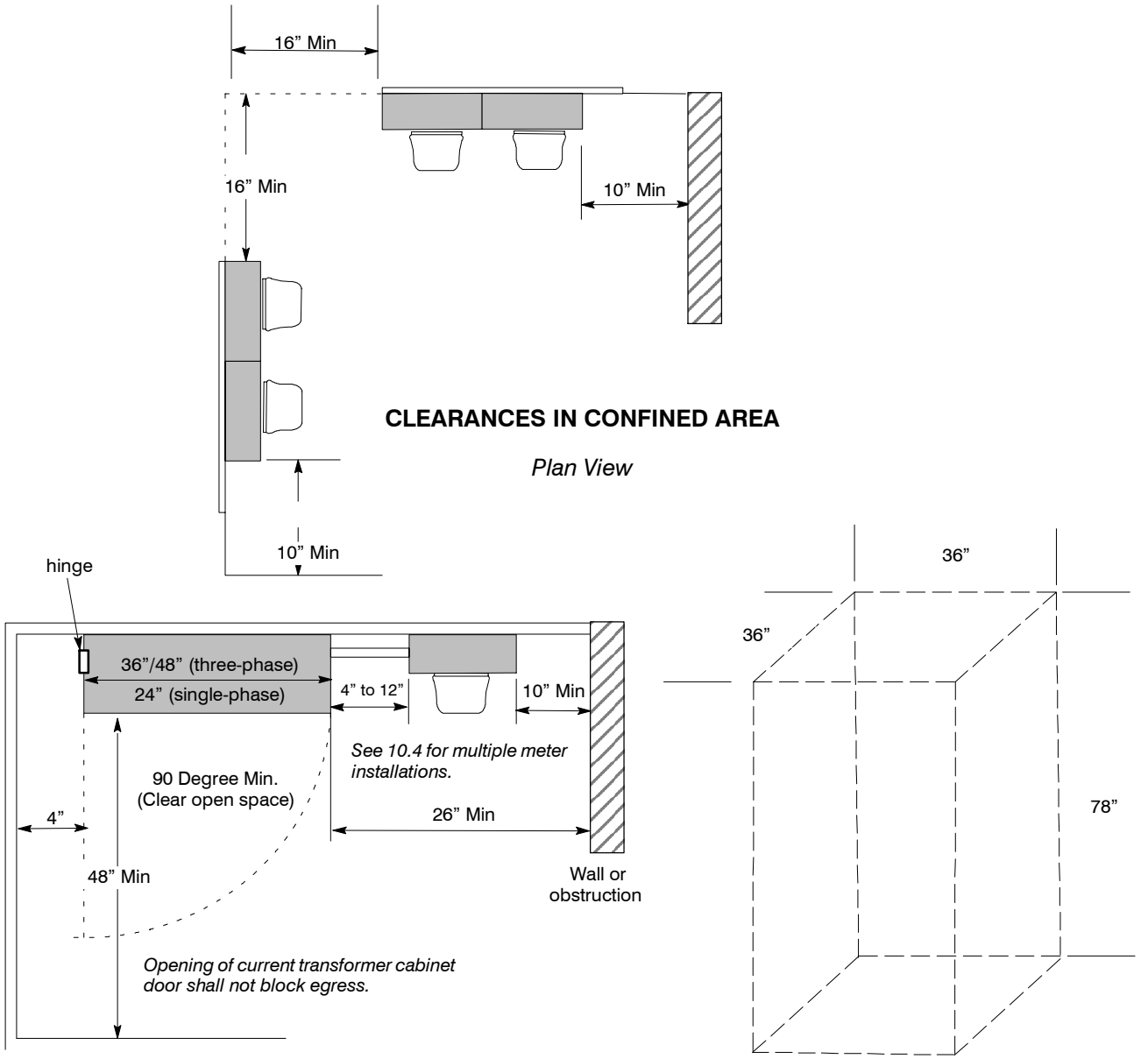
SURFACE MOUNT METER

Requirement:

The minimum unobstructed working space required in front of a single meter is 78” high, 36” wide, and 36” deep (NEC 110.26 A). For CT and switchboard installations, see Section 10.

Note: Dimensions do not refer to meters housed in EUSERC-approved switchboards or enclosures, such as EUSERC 354.

Figure 5.1.2 – Meter Working Space



CLEARANCES IN CONFINED AREA

Plan View

CLEARANCES OUTDOORS OR IN A CONFINED AREA

WORKING SPACE IN FRONT OF METER

Requirements:

1. In a multiple meter socket installation, a minimum unobstructed working space is needed. For side clearance, see Figures 5.1.2 and 8.6.2 for additional clearances.
2. The minimum unobstructed working space required in front of a single meter is 78” high, 36” wide, and 36” deep (NEC 110.26 A). For CT and switchboard installations, see Section 10.
3. All doors shall open outward from rooms that contain Power Company metering and termination equipment.
4. The current transformer cabinet door shall be hinged. The meter socket shall be located on the non-hinged side of the current transformer cabinet door.

Note: Dimensions do not refer to meters housed in EUSERC-approved switchboards or enclosures, such as EUSERC 354.

5.2 Clearances for Services

The clearances listed in Table 5.2.1 below are required for overhead installations in all states except California. For California clearances, see Table 5.2.2.

Table 5.2.1 – NESC Clearances for Service Drops and Drip Loops
750 Volts and Below (Distances in Feet)

The customer shall provide a point of attachment which allows NESC minimum clearances to be met in all conditions. A two-foot addition to certain NESC values is required by the Power Company to ensure minimum clearances in extreme conditions. These required heights are noted as "clearance required at time of construction" in the table below and are marked with asterisks. Long services or other special cases may require clearance additions greater than two feet. Consult the Power Company for services crossing uneven or sloped terrain, or if the service length exceeds 45 feet.

NESC Minimum Clearance		Clearance Required at Time of Construction
	Service drop clearance *(NESC Table 232–1)*	
16′	• Over roads, streets, and other areas subject to truck traffic	18′*
16′	• Over or along alleys, parking lots, and nonresidential driveways	18′*
16′	• Over land travelled by vehicles	18′*
	Clearances over residential driveways *(NESC Table 232–1)*	
16′	• If height of building or installation will permit	18′*
	• If height of building or installation will not permit and is not subject to truck traffic:	
12′	– For service drops 120/240 & 208Y/120 volt	14′*
10′	– For drip loops of service drops 120/240 and 208/120 volts	12′*
	Clearances over spaces and ways subject to pedestrians/restricted traffic only *(see note b. on page 21, NESC Table 232–1)*	
12′	• If height of building or installation will permit	14′*
	• If height of building or installation will not permit, drip loop clearances may be reduced:	
10.5′	– For 480Y/277V (see Note 8-b of NESC Table 232-1)	10.5′
10′	– For 120/240 and 208Y/120 volt (see Note 8-d of NESC Table 232-1)	10′
	Clearances from buildings for service drops not attached to the building *(NESC Table 234–1)*	
	• Vertical clearance over or under balconies and roofs:	
11′	– Accessible to pedestrians, if cabled with a grounded bare neutral (not available in coastal areas)	13′*
11.5′	– Accessible to pedestrians, if open wire or cabled with an insulated neutral (not available in coastal areas)	13.5′*
3.5′	– Not accessible to pedestrians, if cabled with a grounded bare neutral (not available in coastal areas)	5.5′*
10.5′	– Not accessible to pedestrians, if open wire or cabled with an insulated neutral (not available in coastal areas)	12.5′*
	• Horizontal clearance to walls, projections, windows, balconies and areas accessible to pedestrians:	
5′	– If cabled with grounded bare neutral (not available in coastal areas)	5′
5.5′	– If open wire or cabled with an insulated neutral (coastal areas only)	5.5′
	Clearances for service drops attached to a building or other installation *(over or along the installation to which they are attached; service cable with an effectively grounded bare neutral, NESC 230.C)*	
	From the highest point of roofs, decks or balconies over which they pass:	
8′	• If readily accessible (see NESC 234.C.3.d.1)	10′*
3′	• If not readily accessible (see NESC 234.C.3.d.1, exception 1)	5′*
1.5′	• Above a not-readily-accessible roof and terminating at a (through-the-roof) service conduit or approved support, the service and its drip loops set no less than eighteen inches above the roof. No more than six feet of the service cable passes over the roof or within four feet of the roof edge (see NESC 234.C.3.d.1)	1.5′
3′	• In any direction from windows designed to open (does not apply to service cable above the top level of a window; see NESC 234.C.3.d.2)	3′
3′	• In any direction from doors, porches, fire escape, etc. (see NESC 234.C.3.d.2)	3′

* Two additional feet have been included above NESC minimums; see the introductory paragraph above. *Also see notes on the following page.* Contact the Power Company regarding situations not listed above.

Table 5.2.2 – Minimum Clearances for Service Drops and Drip Loops, California Only (GO 95)

480/277 Volts and Below (Distances in Feet)

Service drop clearance

- Crossing or along thoroughfares in urban districts or crossing thoroughfares in rural districts. . . . . 18′
- Above ground along thoroughfares in rural districts, or across other areas traversed by vehicles or agricultural equipment . . . . . 15′
- Over private driveways, lanes, or other private property areas accessible to vehicles used for industrial or commercial purposes. . . . . 16′
- Over private driveways, lanes, or other private property areas accessible to vehicles used for residential purposes only. . . . . 12′
- Above ground in areas accessible to pedestrians only. . . . . 10′

Clearances from buildings for service drops not attached to the building

- Vertical clearance above walkable surfaces on buildings, bridges or other structures which do not ordinarily support conductors, whether attached or unattached. . . . . 8′
- Vertical clearance above non-walkable surfaces on buildings, bridges or other structures which do not ordinarily support conductors, whether attached or unattached. . . . . 8′

Horizontal & Radial Clearances:

- From fire escapes, exits, windows, and doors . . . . . 3′
- Horizontal clearance of the conductor at rest from buildings, bridges, or other structures where such conductor is not attached . . . . . 3′

Clearances for service drops near swimming pools

Consult the Power Company prior to the installation of pools, spas, or hot tubs.

Notes for Clearance Tables 5.2.1 and 5.2.2:

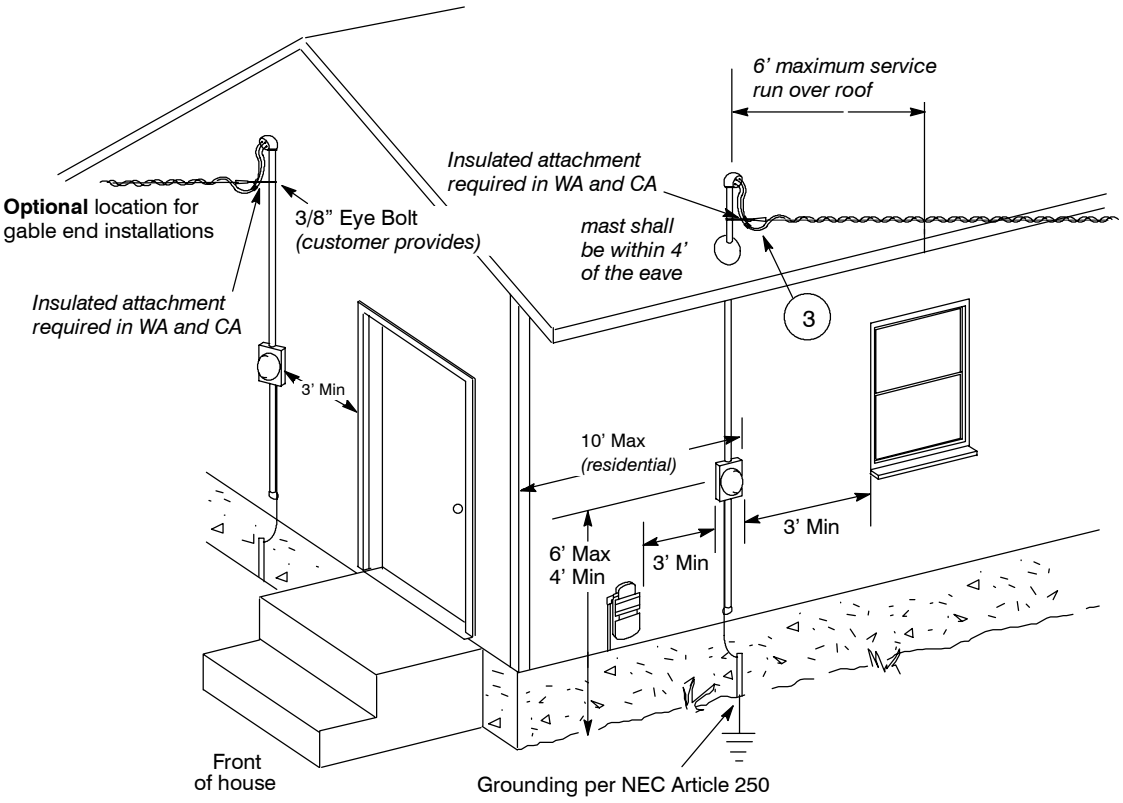
a. A truck is any vehicle exceeding eight feet in height. Areas not subject to truck traffic include places where truck traffic normally doesn't occur or is not reasonably anticipated.

b. Spaces and ways subject to pedestrians or restricted traffic only include those areas where equestrians, vehicles, or other mobile units that exceed 8 feet in height are prohibited by regulations, permanent terrain configurations, or are otherwise not normally encountered or anticipated.

c. The Power Company considers a roof, balcony, or area to be readily accessible to pedestrians if it can be casually accessed through a doorway, ramp, window, stairway, or permanently-mounted ladder, by a person on foot who neither exerts extraordinary physical effort nor employs special tools or devices to gain entry. The Power Company does not consider a permanently-mounted ladder as a means of access if its bottom rung is eight feet or more from the ground or other permanently-installed accessible surface (NESC 234.C.3.d, Exception 1).

The following figures illustrate the required clearances for overhead and underground services.

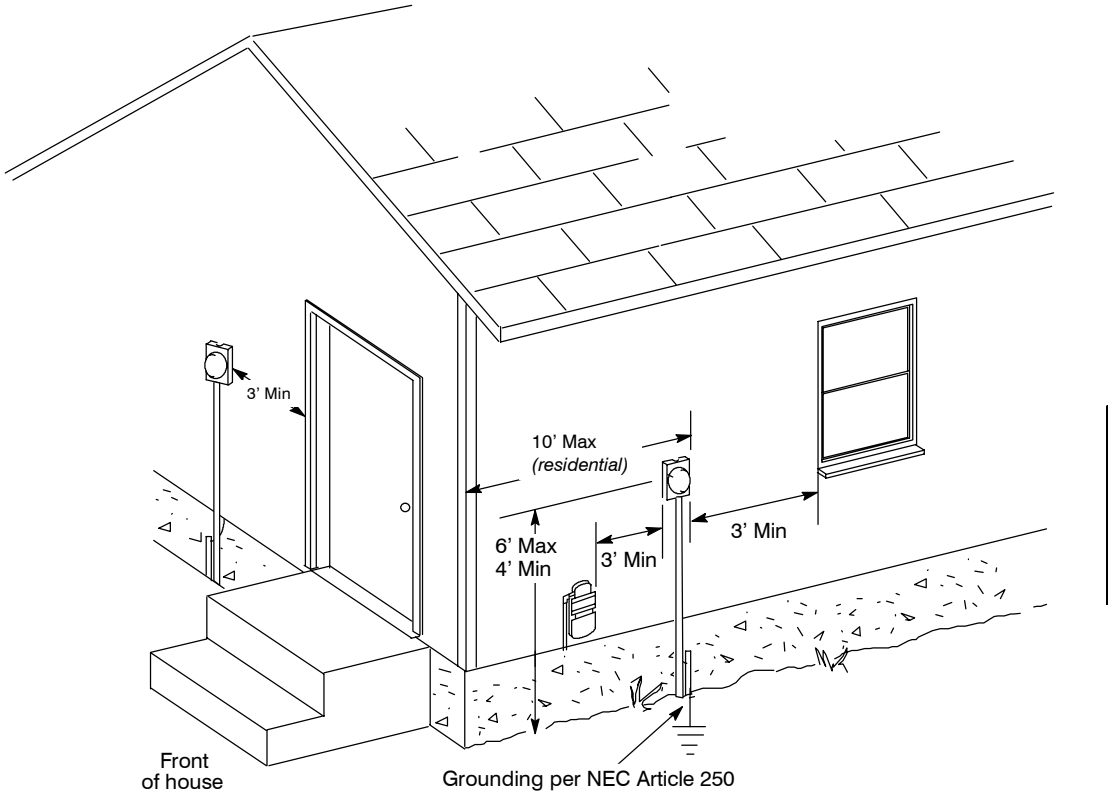
Figure 5.2.1 – Clearances for Buildings Supporting an Overhead Service



Requirements:

1. A ten-foot maximum distance from the front corner of a residence to the far side of the service is allowed.
2. Table 5.2.1 lists the minimum drip loop and service drop clearance requirements.
3. The cable and drip loop (lowest point) shall be at least 18" above a non-accessible roof (NESC 234.C.3.d, Exceptions 1 and 2).
4. The three-foot distance between windows and the electric meter is not required if the window does not have a view of a living space.
5. The meter location must be approved by the Power Company prior to installation.
6. Buildings should not be constructed under or adjacent to lines.

Figure 5.2.2 – Clearances for Underground Service



Requirements:

1. A ten-foot maximum distance from the front corner of a residence to the far side of the service is allowed.
2. The three-foot distance between windows and the electric meter is not required if the window does not have a view of a living space.
3. The meter location must be approved by the Power Company prior to installation.
4. 24” of backfill above the underground conduit is required (per NESC).

5.3 Conductors Near Pools, Spas or Hot Tubs

5.3.1 Overhead

The Power Company recommends that conductors do not pass over pools, spas or hot tubs. Contact the Power Company before construction.

5.3.2 Underground

Never locate underground conductors under or within 5 horizontal feet of the inside wall of a pool or spa. Service conductors shall be run in Power Company-approved conduit installed by the customer. For trench depth, cover, and conduit requirements, see Section 6.

5.4 Clearance from Underground Gasoline Storage Tanks

5.4.1 Overhead Clearances

Overhead conductors of 22 kV and below shall not be located within 7.5 horizontal feet and 13.5 vertical feet from storage tanks when conductors are under extreme loading and weather conditions (NESC 234–1) (California requires 15 feet of clearance). Conductors shall be installed outside the hazardous zone of storage tanks in accordance with applicable sections of NFPA 30–2000, NFPA 59–1998 and the latest NEC based on the type of material stored inside the tanks.

5.4.2 Underground Clearances

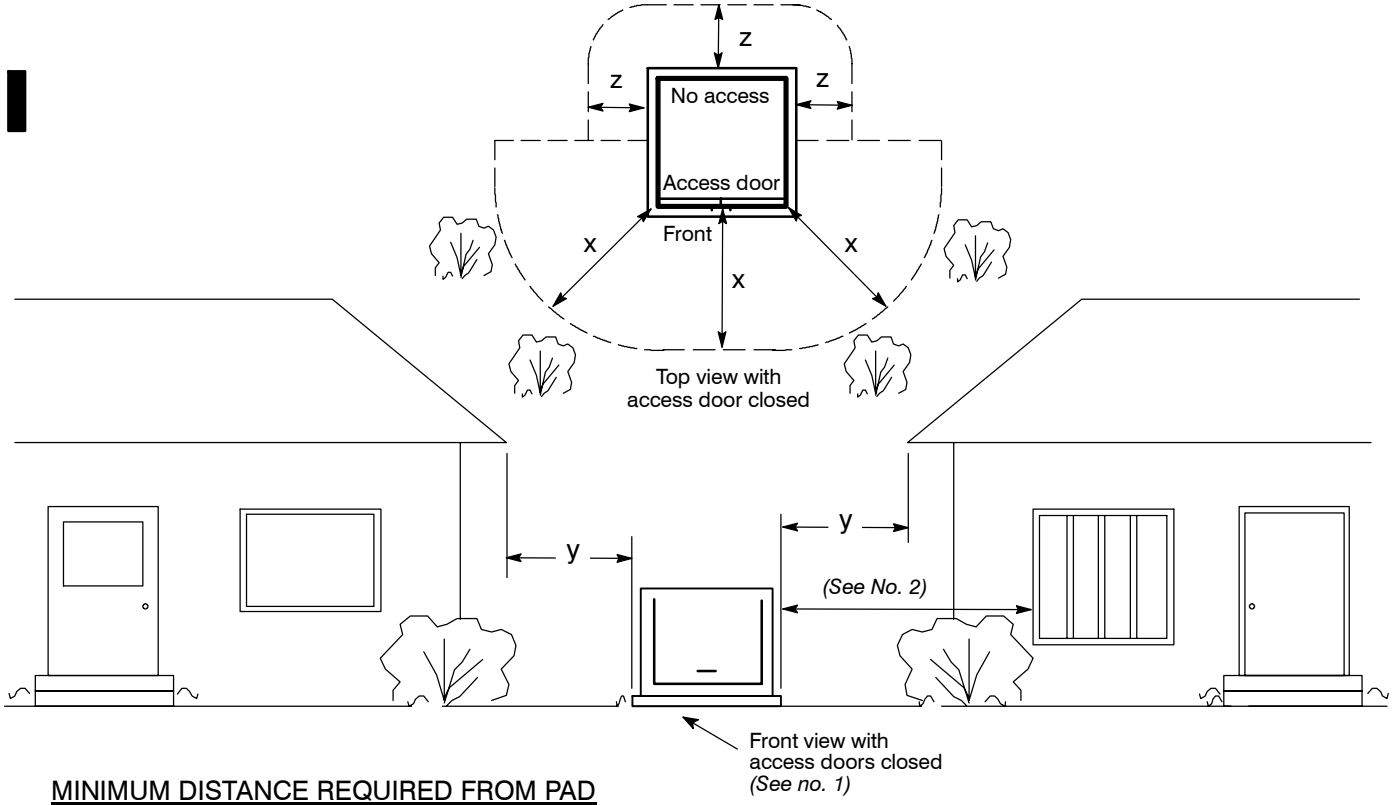
Underground service conduits shall be located at least 10 feet from the fill opening of underground tanks containing flammable liquids. Where the fill opening is a tight connection, a 5-foot distance shall be maintained.

5.5 Clearances From Padmounted Equipment

The Power Company requires 10 feet of clear space in front of all access doors. See Figure 5.5 below for further details.

The customer shall also comply with state and local requirements. See Section 2.1, *Codes and Ordinances*, for more information.

Figure 5.5 – Padmounted Equipment Clearances



MINIMUM DISTANCE REQUIRED FROM PAD

x = 10 ft. clear area in front of, any equipment access door or opening to allow the use of hot sticks (See dimensions in the drawing above, and in requirement 1 below.)

y = 8 ft. from any structure or roof overhang consisting of combustible material.
3 ft. to non-combustible structures having no openings closer than 10 ft.

z = 3 ft. clear area on non-access sides of the equipment to allow work space. See dimensions in the drawing above.

Requirements:

1. Locate padmounted equipment with access doors away from building walls or other barriers to allow safe working practices. If the equipment access side must face a wall, allow 10 feet for working clearance. No vegetation or trip hazards in this work space are permitted.
2. Consult the Power Company for any additional required clearances from building fire escapes, air vents, gas meters, etc. The clearance from windows is a minimum of 10 feet. Doors require clearances up to 20 feet (10' minimum to the side of a door, 20' minimum in front of a door).
3. Where exposed to motorized vehicles, the customer must install and maintain a Power Company approved barrier to protect padmounted transformers and other equipment. (See Figure 6.4.4).
4. For installations adjacent to a temporary service, see Figure 4.2.2 for clearance requirements.

6 Underground Requirements

6.1 General

The customer is responsible for providing all trenches, backfill, compaction, conduit, equipment bases. The customer shall meet the requirements described in this section to complete construction for underground installation. This section is divided into these general categories:

Conduit requirements

Trench and Backfill Requirements:

Service trench — underground systems less than 600 V (delivery to the customer from the Power Company Source)

Main trench — primary conductor greater than 600 V and secondary conductor less than 600 V (no direct service to the customer).

Vaults for Padmounted Transformers (equipment support and protection)

The customer is responsible for ensuring that all conduit complies with Power Company requirements at the time of the cable installation. Conduit systems installed prior to written approval from the Power Company shall be subject to Power Company acceptance and the requirements of this manual.

Prior written approval is required from the Power Company for conduit systems that exceed the conditions listed in Table 6.2.1.1, *Conduit Sizes, Run Lengths and Bend Limits*. A larger conduit size or sweep radius may be required for longer runs or more bends.

6.2 Conduit Requirements

The Power Company owns and maintains the customer-installed conduit and the service lateral to the service point. The Power Company will install the underground cable from the Power Company's source to the service point. All services shall be installed in conduit.

Requirements:

The following list of requirements applies to all conduit installations:

1. The customer shall ensure that Power Company conduit is located away from (and never underneath) buildings, building foundations or other structures (including retaining walls).
2. The customer is responsible for recognizing potential surface and subgrade water flows and coordinating with the Power Company to minimize potential runoff problems.
3. All raceways and conduit shall be sealed to prevent the infiltration of water into the electrical equipment.
4. The customer shall install rigid steel, fiberglass or electrical grade Schedule 40 gray PVC pipe.
5. The customer shall provide and install conduit including long radius sweeps. See Table 6.2.1, *Sweep Specifications*. All sweeps shall be factory-quality steel, PVC or fiberglass.
6. When conduit terminates at Power Company equipment, the customer shall consult the Power Company for the exact conduit location. The customer shall not install conduit within two feet of the equipment, unless requested by the Power Company.
7. When a conduit extends vertically through a paved or concrete surface, a sleeve should be placed around the conduit to prevent direct contact with the pavement. This helps prevent damage to conductors and service equipment caused by soil settling.
8. The customer shall keep conduit free of dirt and debris during installation.
9. The customer shall provide backfill, compaction, and surface restoration. The customer is responsible for repairing crushed conduit, including the cost for the crew to return to the job site.

10. The customer shall provide a flat pull line (preferred) or poly rope (alternative) capable of withstanding 500 lbs. of tension, installed with 6 feet of extra line able to extend from each end of the conduit. Secure the pull line inside the ends of the conduit and cap both ends.
11. The customer shall proof conduit systems with a mandrel that confirms 80% of the nominal conduit diameter. See Table 6.2.2, *Required Mandrel Sizes for Conduit Proofing*.
12. The customer shall supply smooth-walled conduit reducers (swedges) when required.
13. The customer shall not install customer-owned conductors in the same conduit/vault system with Power Company conductors.

Table 6.2.1 – Sweep Specifications

Diameter (Inches)	Long Radius Sweep (Inches)	Minimum Fiberglass Wall Thickness (Inches)
3	36	.070
4	36	.096
5	48	.110
6	48 or 60	.110

Additional Requirements for Fiberglass Sweeps:

1. Each sweep requires two factory-attached PVC, extra-deep, fabricated expanded bell-ends.
2. Sweeps must meet UL 1684.

Table 6.2.2—Required Mandrel Sizes for Conduit Proofing

Conduit Nominal Diameter (Inches)	Mandrel Diameter (Inches)	Mandrel Length (Inches)	Proof (Percentage)
3	2.5	3.25	83
4	3.5	4.25	87
5	4.75	5.25	92
6	5.5	6.25	92

6.2.1 Service Conduit Requirements

The customer shall meet the following requirements when preparing a service conduit system:

1. A stronger conduit material, larger conduit size or larger sweep radius may be required for long runs or more than three bends. The customer shall obtain written approval from the Power Company for exceptions.
2. The customer must meet minimum conduit size requirements. Table 6.2.1.1 below lists the minimum acceptable conduit sizes for Power Company service lateral conductors.
3. Provide trenching to code depth. 24" of minimum cover over conduit is required for secondary services.
4. Conduit reducers (swedges) shall be smooth-walled.
5. Trench depth requirements as shown in Figures 6.3.3 and 6.3.4 shall be met.
6. An aerial extension to connect a new underground service is not allowed, unless the following conditions exist:
   a. Physical obstacles such as large culverts or sewer lines prohibit boring or trenching.
   b. Boring is prohibited by the municipal, county or state authority
   c. Geological barriers such as deep canyons, water ways, solid rock, steep slopes or unstable soil conditions prohibit trenching or boring.

Table 6.2.1.1 – Conduit Sizes, Run Lengths and Bend Limits

Note: Sizes or quantities greater than those listed is this table require prior written approval from the Power Company, and may require steel or fiberglass sweeps.

Phase	Load	Conduit Size	Run Length (Feet)	Bend Size (Degrees)	Maximum Cable Size
Single	200 amps or less	one 3-inch	150′	270	4/0
Single	201 to 400 amps	one 3-inch	150′	270	350 KCM
Single	401 amps or more	two 4-inch	100′	270	500 KCM
Three	200 amps or less	one 3-inch	150′	270	4/0
Three	201 to 400 amps	one 4-inch	150′	270	500 KCM
Three	401 to 800 amps	two 4-inch	100′	270	500 KCM
Three	801 amps and up	Consult Power Company	50′	Consult Power Company	Consult Power Company

6.3 Trench and Backfill Requirements

The customer shall provide all trenching. OSHA requires that the trench be shored when the combination of trench depth plus the spoil exceeds five feet. To comply with OSHA rules when not shoring a trench, the customer shall keep the spoil at least two feet away from the open trench.

To the extent possible, trench bottoms shall be level and made of well-tamped earth or selected backfill without sharp rises and drops in elevation. Rock spurs or ridges shall not project into the trench. If trenching is left open overnight, the customer is responsible for cleaning prior to conduit installation.

If state or local regulations are more stringent than Power Company requirements, the more stringent requirements shall be followed.

6.3.1 Backfill Requirements

The following list of requirements applies to all installations requiring backfill:

1. The customer shall provide trench backfill and site restoration.
2. The utility-recommended backfill material within 6" of the conduit shall pass through a 3/4" sieve frame. The remainder of the backfill shall be free of materials that may damage the conduit system.
3. The Power Company will not energize conductors until the customer completes the backfill to Power Company satisfaction.

Extra caution should be taken when refilling trenches. The cost to repair a conduit and the Power Company's crew costs are at the expense of the customer/developer.

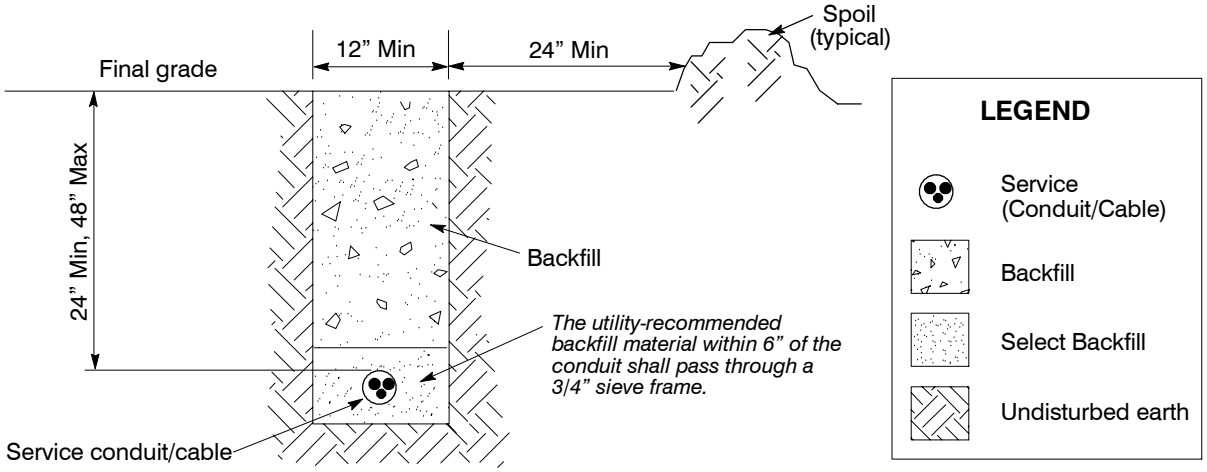
6.3.2 Call Before You Dig

State laws require the customer or excavator to call for underground utility locations. Excavation may not be started until locations have been marked or the utilities have informed the excavator that there are no facilities in the area. Refer to Section 1 for state specifics.

6.3.3 Service Trench

When installing only service cable in the trench, follow the dimensions and requirements in Figure 6.3.3 below.

Figure 6.3.3 – Service Trench (Only)



See Section 6.3.1 for backfill requirements.

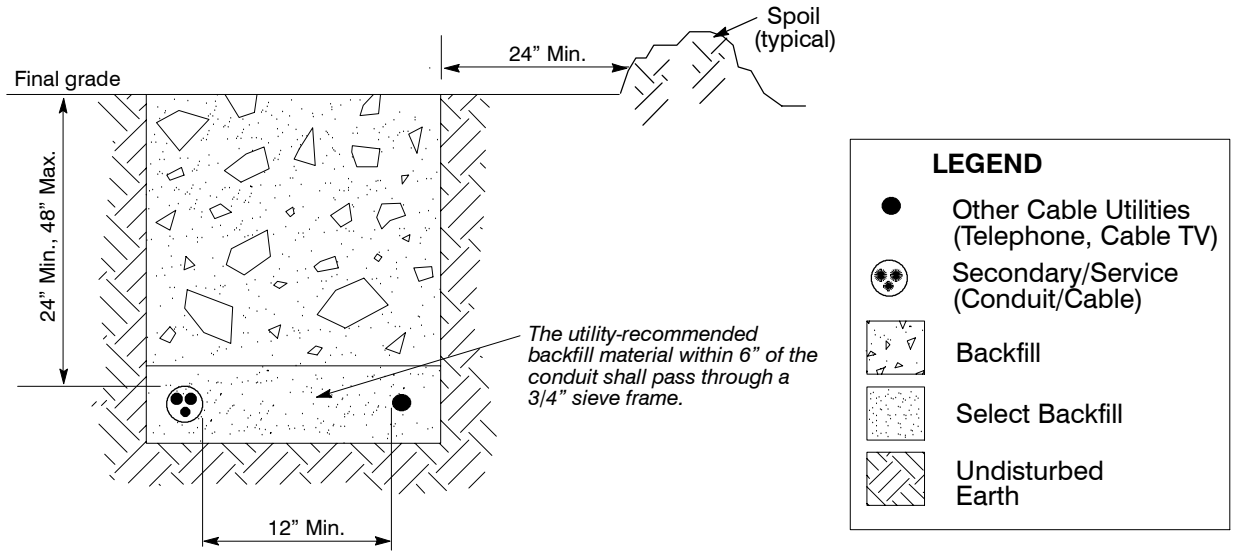
6.3.4 Joint Use Service Trench

Joint use trenching requirements may vary by area; consult the Power Company for requirements before installation. The customer may be able to place communication, signal and other electrical conductors in the same trench as Power Company conductors, provided that the installation meets Power Company specifications and all concerned parties agree on such placement.

The Power Company will not install electrical conductors in a common trench with non-electric utilities such as water, and sewer and other drainage lines. For joint trench with gas lines, contact the Power Company for acceptability.

When installing service cable in a joint use trench, follow the dimensions in Figure 6.3.4.

Figure 6.3.4 – Joint Use Service Trench



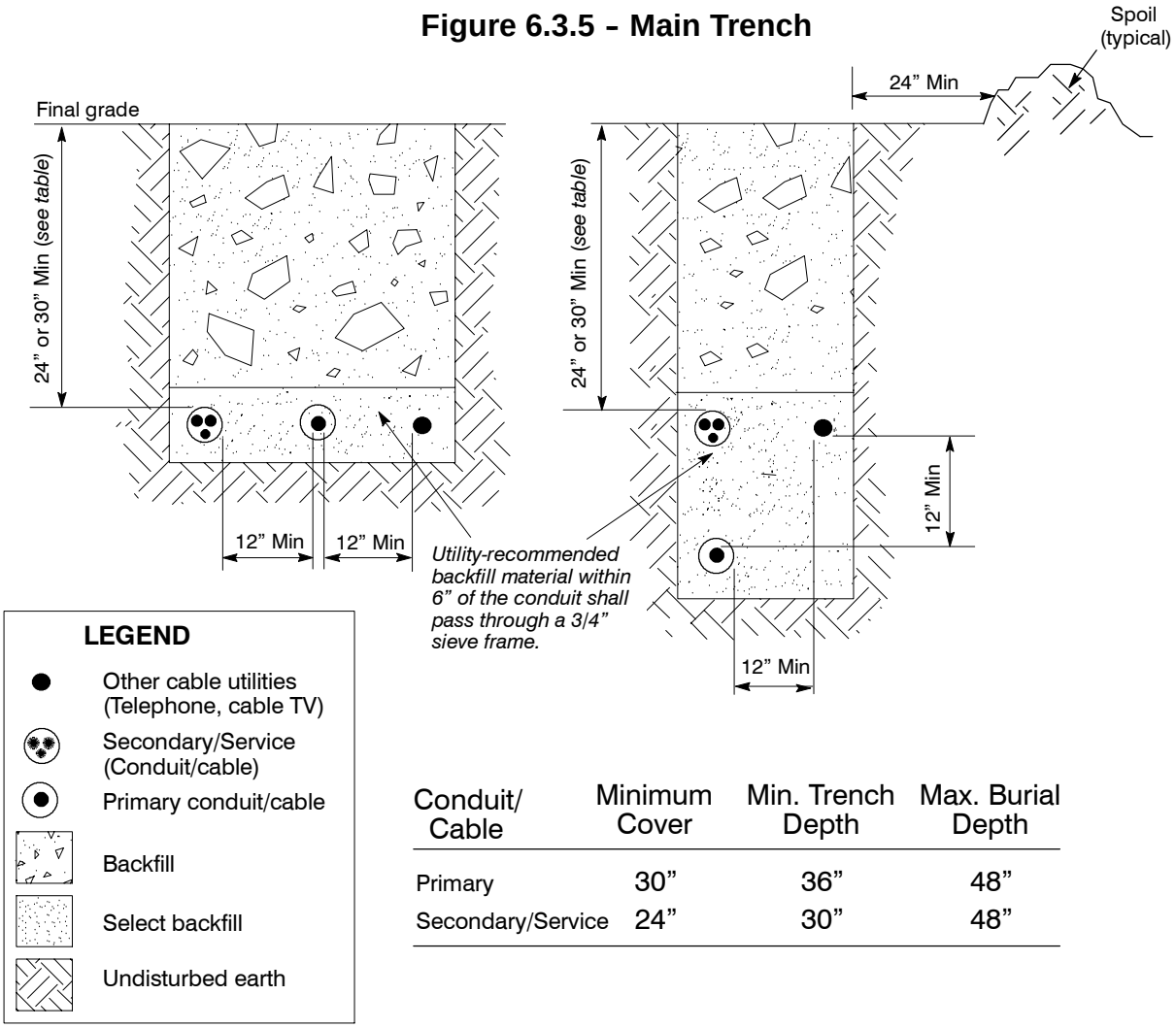
See Section 6.3.1 for backfill requirements.

6.3.5 Main Trench

The main trench is normally in the Public Utility Easement (PUE). This trench may include both primary and secondary cable, requiring extra trench depth. When digging a main trench, the customer shall follow the dimensions shown in Figure 6.3.5 below.

In some areas, joint use agreements exist between other utilities and/or government agencies. These agreements dictate the location of the utility structures and conduits. Such requirements must be followed if they are more stringent than the design below.

Figure 6.3.5 – Main Trench



Conduit/ Cable	Minimum Cover	Min. Trench Depth	Max. Burial Depth
Primary	30"	36"	48"
Secondary/Service	24"	30"	48"

See Section 6.3.1 for backfill requirements.

6.4 Vaults for Padmounted Transformers

The customer shall consult the Power Company to obtain requirements for concrete vaults or fiberglass box pads for padmounted equipment.

Pre-cast vaults are preferred. Consult the Power Company for specifications and/or a list of suppliers.

6.4.1 Vaults

The Power Company requires vaults under cable compartments. Consult the Power Company for transformer vault dimensions. The vault lid is typically installed 3" above the finished grade. Vaults shall be located within 15 feet of a graveled or paved surface suitable for incidental heavy truck access.

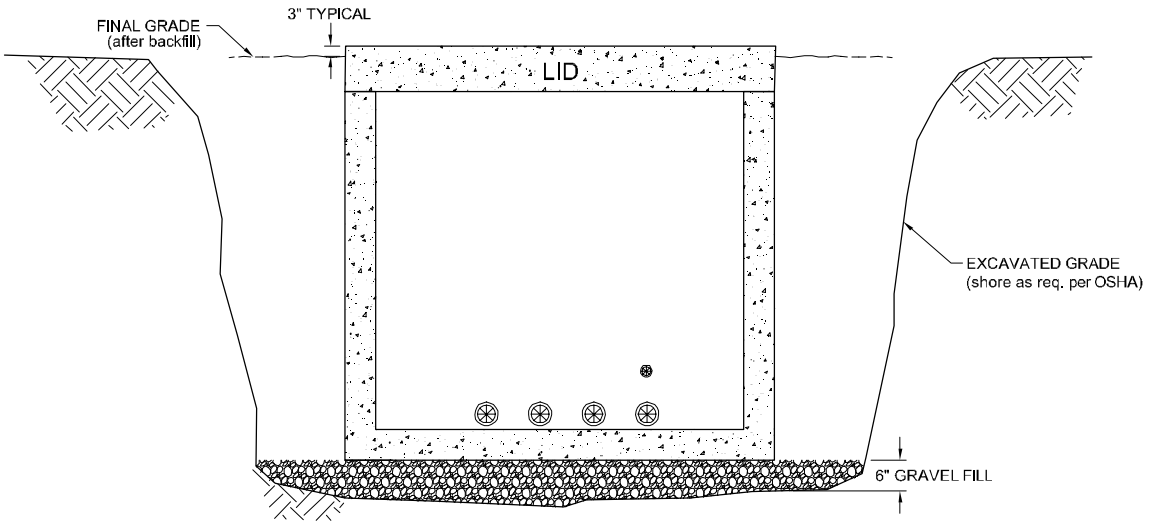
6.4.2 Clearances

Equipment bases must not be placed within 15 feet of any valve or within 25 feet of any pumping or storage facility containing flammable material. Do not place the equipment base within 10 feet of a window or door (see Figure 5.5, Requirement 2.). No walls, fences or other obstructions may be placed within these clearances. For other special applications, the customer must contact the Power Company for a suitable location.

6.4.3 Excavation and Backfill

Excavate the entire area beneath the vault base to allow the depth requirements illustrated below. All soil beneath the vault base shall be compacted and level prior to setting or pouring the base, to prevent settling. Beneath the vault, the customer shall provide 6 inches of 3/4-inch-minus gravel backfill compacted to 90 percent of dry density, placed over undisturbed earth.

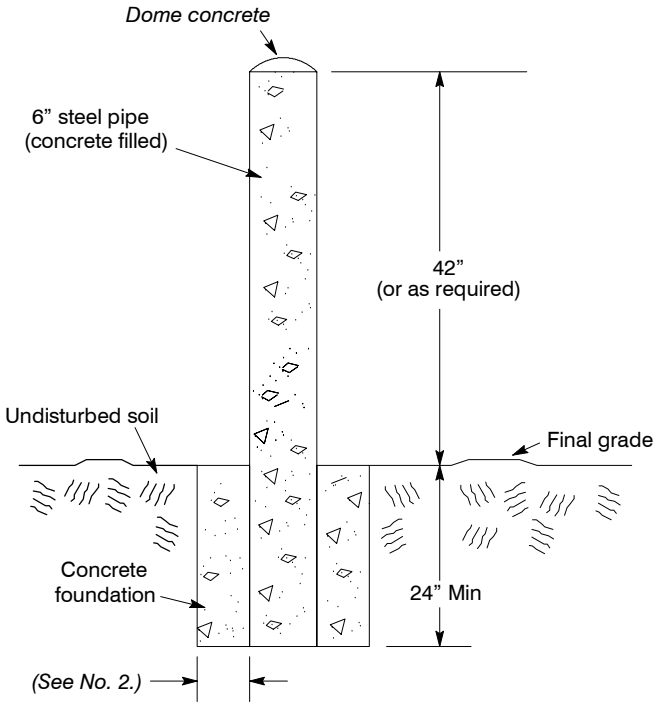
Figure 6.4.3 – Vault Depth and Excavation Requirements



6.4.4 Barrier Post

Install a 6” diameter steel, concrete-filled barrier post (or posts) around Power Company equipment in areas where the equipment is exposed to vehicle traffic. For additional specifications and other options, contact the local Power Company office.

Figure 6.4.4 – Barrier Post



Additional Requirements:

1. For barrier post height and placement locations, contact the local Power Company office.
2. If a barrier post is placed in stable soil, a 6” concrete foundation is required. If the soil is sand, or otherwise unstable, a 12” concrete foundation is required.
3. Concrete must be domed at the top of the barrier post. Remove any sharp edges or burrs.

City of Roseburg
Downtown Utility Undergrounding Feasibility Study
Conceptual Estimate - Draft

GENERAL	Unit	Estimated Quantity	Unit Price $/Unit	Amount $
Mobilization, Bonds, Insurance and Demobilization (8%)	LS	1	$154,858.85	$154,859
Traffic Control (4%)	LS	1	$77,429.42	$77,429
Erosion Control	LS	1	$5,000.00	$5,000
Surveying	LS	1	$15,000.00	$15,000
Saw-Cutting (Concrete Only)	LF	1,068	$1.50	$1,602
Conduit Trench Excavation, Bedding & Backfill - (For Single to Multiple Conduit Installation)	LF	2,992	$40.00	$119,680
Excavation & Disposal of Contaminated Soil*	CY	75	$150.00	$11,220
Asphalt Restoration (Includes saw cutting, removal and complete replacement)	SY	5,714	$50.00	$285,722
Striping	LS	1	$5,000.00	$5,000
Decorative Street Lighting (Includes all electrical, materials, etc @ 100' Spacing alternating sides)	Ea	18	$10,000.00	$180,000
Bollards	Ea	12	$600.00	$7,200
Sidewalk bulb outs for Single Phase transformer placement (Excludes Bollards)	Ea	1	$10,000.00	$10,000
Concrete Sidewalk Restoration	SY	629	$55.00	$34,589
Concrete Curb + Gutter Restoration	LF	250	$20.00	$5,000
	General Sub Total			**$912,301**
PACIFIC POWER				
Conduit Installation - Trench (PVC - 3" to 6")	LF	8,960	$2.50	$22,400
Conduit Installation - Boring (PVC 4" & 6") (Includes Boring Cost)	LF	575	$60.00	$34,500
Service Connection (private side - includes misc motor conversions/changes and work behind meter to restore service)	Ea	150	$2,500.00	$375,000
New Meter (Individual)	Ea	18	$400.00	$7,200
New Meter (Ganged Meter Group - 4)	Ea	12	$1,200.00	$14,400
New Meter (Ganged Meter Group - 6)	Ea	14	$1,500.00	$21,000
Existing Meter Box Removal (includes existing conduit removal and minor repairs to structure)	Ea	150	$500.00	$75,000
Pad Mounted Switchgear - Three Phase Fuse Cabinet	Ea	1	$12,500.00	$12,500
Pad Mounted Switchgear - Three Phase Sectionalizing Cabinet	Ea	1	$7,500.00	$7,500
Electrical Structures (Switchgear vaults, transformer padmounts, and pull boxes)	Ea	27	$5,000.00	$135,000
Overhead Utility Removal (conductor, poles, transformers)	LS	1	$85,000.00	$85,000
Pad Mounted Transformers - Installed (excludes padmount)	Ea	6	$20,500.00	**
Conductor (Materials & Installation)	LF	8,960	$9.00	**
Connections To New Meters	Ea	150	$80.00	**
Connections To New Transformers	Ea	6	$300.00	**
Connections To Pad Mounted Switchgear (2 Cabinets)	Ea	2	$300.00	**
	Pacific Power Sub Total			**$789,500**
COMSPAN COMMUNICATIONS				
Conduit Installation - Trench (Schedule 40 - 2" to 4")	LF	13,965	$2.50	$34,913
Service Connections (Includes work to restore service to private property)	Ea	38	$1,500.00	$57,000
Cross Connect Cabinets and Concrete Pads (Furnish & Install)	Ea	11	$4,500.00	$49,500
Overhead Utility Removal (Existing Cable, Etc.)	LS	1	$20,000.00	**
Cable (Materials & Installation)	LF	13,965	$9.00	**
Cable Connection To Cross Connect Cabinets	Ea	11	$300.00	**
	Comspan Communications Sub Total			**$141,413**
QWEST				
Conduit Installation - Trench (Schedule 40 - 2" to 4")	LF	11,432	$2.50	$28,580
Service Connections (Includes work to restore service to private property)	Ea	38	$1,500.00	$57,000
Cabinet and Concrete pad (Furnish & Install)	Ea	1	$4,500.00	$4,500
Handholes (pull boxes) (Furnish & Install)	Ea	9	$3,000.00	$27,000
Overhead Utility Removal (Existing Cable, Etc.)	LS	1	$20,000.00	**
Cable (Materials & Installation)	LF	11,432	$9.00	**
Cable Connection To Cross Connect Cabinets	Ea	1	$300.00	**
	Qwest Sub Total			**$117,080**
DOUGLAS FAST NET (DFN)				
Conduit Installation - Trench (Schedule 40 - 2" to 4")	LF	11,432	$2.50	$28,580
Service Connections (Includes work to restore service to private property)	Ea	38	$1,500.00	$57,000
Cabinet and Concrete Pad (Furnish & Install)	Ea	1	$4,500.00	$4,500
Handholes (pull boxes) (Furnish & Install)	Ea	9	$3,000.00	$27,000
Overhead Utility Removal (Existing Cable, Etc.)	LS	1	$20,000.00	**
Cable (Materials & Installation)	LF	38	$9.00	**
Cable Connection To Cross Connect Cabinets	Ea	1	$300.00	**
	Douglas Fast Net Sub Total			**$117,080**
UTILITY RELOCATION				
Gas Line Relocation	LF	30	$30.00	$900
Gas Meter Relocation	Ea	5	$1,000.00	$5,000
Water Service Replacement / Relocation	LF	100	$30.00	$3,000
Water Meter Relocation	Ea	5	$750.00	$3,750
Sanitary Sewer Lateral Replacement / Relocation	LF	100	$30.00	$3,000
	Utility Relocation Sub Total			**$15,650**
Easement Purchase				
Easement / Right-of-way Purchase	Ea	5	$15,000.00	$75,000
	Easement Purchase Sub Total			**$75,000**
OPTIONAL DESIGN ITEMS & AMENITIES				
Decorative Benches	Ea	10	$1,500.00	$15,000
Decorative Garbage Cans	Ea	5	$1,750.00	$8,750
Decorative Brick Walls (Multi purpose for transformer protection and disguise)	Ea	5	$2,500.00	$12,500
Decorative Planters	Ea	10	$1,250.00	$12,500
Sidewalk bulb outs for three phase transformer placement (optional)*** (Excludes Bollards)	Ea	5	$10,000.00	$50,000
	Optional DI's & Amenities Sub Total			**$98,750**
SUMMARY				
Total (Excluding Optional DI's & Amenities)				**$2,168,024**
Total with Contingency (Excluding Optional DI's & Amenities)	**30%**			**$2,818,431**

* The feasibility study scope did not include subterranean exploration. For forecasting a reasonable cost estimate, the cost estimate has assumed a small amount of contaminated soil may be discovered and this material would be disposed in an appropriate manner.

** Amounts have been excluded in cost estimate as Utility Companies have indicated responsibility for covering these costs.

*** Sidewalk bulb outs for transformer placement could eliminate/reduce easement and right-of-way purchase costs

ONE-CALL REQUEST FORM

ONE-CALL CENTER (OCC) 1-800-332-2344
Metro Area (503) 246-6699

Date:	July 22, 2010

Project Name:	City of Roseburg Utility Undergrounding Feasibility Study
Key Number:	Pre-survey

INFORMATION NEEDED PRIOR TO CALLING OCC			
Caller ID No.:	Murray, Smith & Associates – Springfield, OR		
Caller Name:	Brett Garland	**Phone:**	541-741-2975
Backup Name:	Bill Hollings	**Phone:**	541-741-2975
Type of Work:	**Utility Undergrounding Feasibility Study on SE Main Street.**		
Request:	**Utilities to contact you within 10 business days to agree on a time for marking utilities in the field and supplying utility maps per: OAR 952-01-80(3). Request for paint and mapping of all utilities along SE Main St. between SE Mosher Ave. and SE Douglas and 150 feet from center line on either side of SE Main St.** **Note Mapping has already been received from the following:** - **City of Roseburg (Storm Sewer and water)** - **Roseburg Urban Sanitary Authority (Sanitary Sewer)** - **Avista Utilities (Gas)** - **Pacific Power**		

PROJECT LOCATION	
Township/Range/Section or GPS Coordinates:	T27S / R.5W / SEC.19
County:	Douglas County
City:	Roseburg
Street/Hwy Name:	SE Main Street
Mile Points:	
Cross Streets:	SE Mosher Avenue to SE Douglas Avenue

INFORMATION RECEIVED FROM OCC	
Ticket No.:	10138713
Utility Contact List: RUSA, Pacific Power, Avista Utilities, City of Roseburg, Oregon DOT, Qwest Mobile Network, Comspan Communications	

OAR 952-01-80

OPERATORS TO RESPOND TO NOTIFICATIONS REQUESTING DESIGN INFORMATION
Within ten (10) business days after a designer notifies the Oregon Utility Notification Center of a proposed project, the operator of the underground facilities shall:

(1) Mark with reasonable accuracy all of its locatable underground facilities within the area of proposed excavation. All marks shall indicate the name, initials or logo of the operator of the underground facilities, and the width of the facility if it is greater than two (2) inches;

(2) Provide the excavator the best description available to the operator of the unlocatable underground facilities in the area of the proposed excavation including as-constructed drawings, or other facility maps that are maintained by the facility operator; or

(3) Contact the person requesting design information and agree on a time, prior to the beginning of the proposed project, for exchange of the information required under paragraph (1) or paragraph (2) of this rule.

City of Roseburg
Downtown Utility Undergrounding Feasibility Study
Utility Contact List

Company	Utility	Contact Name	Phone Number	Email	Alternate Number	Title
Pacific Power	Power	Jeff Harmon	541-679-3665	jeffrey.harmon@pacificorp.com	888-221-7070	Distribution Manager
Qwest	Telephone	Johnny Hutasangkas	503-399-4339	Chalin.Hutasangkas@qwest.com	503-333-7998	Design Engineer
Comspan Communications	Communications	Tim Spannring	541-229-2122	tims@comspancomm.com	N/A	Operations Manager
Douglas Fast Net	Communications	Todd Way	541-673-4242	tway@corp.douglasfast.net	541-784-7692	Operations Manager
Avista Utilities	Natural Gas	Ryan Forsloff	541-440-1162	ryan.forsloff@avistacorp.com	800-659-4427 Ext. 1162	Customer Project Coordinator
Roseburg Urban Sanitary Authority	Sanitary Sewer	Dave Fromdahl	541-672-1551	dfromdahl@rusa-or.org	N/A	Information Systems Coordinator
City of Roseburg	Water	Public Works Department	541-440-1182	N/A	N/A	N/A
City of Roseburg	Storm Sewer	Public Works Department	541-440-1182	N/A	N/A	N/A

CITY OF ROSEBURG
DOWNTOWN UTILITY UNDERGROUNDING FEASIBILITY STUDY
Project Kick Off Meeting Agenda

July 19, 2010, 12:00 PM

1. Opening Statements

2. Introduction of Personnel

City of Roseburg:
Jeff Nelson P.E., Project Manager

Murray, Smith & Associates, Inc.
Bill Hollings P.E., Project Manager
Chris Link P.E., Project Engineer
Brett Garland, Staff Engineer
Devin Montgomery, Staff Engineer

(Kevin Thelin P.E., Principal-in-charge)

3. Project Overview – Downtown Utility Undergrounding Feasibility Study

- Determine the feasibility of converting overhead utilities to underground along SE Main Street between SE Douglas Avenue and just south of SE Lane Avenue.
- Prepare conceptual designs
- Prepare budget estimates
- Provide Undergrounding Feasibility Report summarizing findings

4. Lines of Communication

- MSA (office contact number – 541-741-2975)
  - Project Manager - Bill Hollings, PE: hollingsw@msa-ep.com
  - Staff Engineer – Brett Garland, garland@msa-ep.com (main contact)
  - Project Engineer – Chris Link, linkc@msa-ep.com

- MSA Sub consultant (Integrated Consulting Services)
  - Local liaison, Clay Baumgartner, clay.baumgartner@yahoo.com

- City of Roseburg (office contact number – 541-492-6730 Ext 3)
  - Project Manager – Jeff Nelson, P.E: JNelson@cityofroseburg.org

- Additional City of Roseburg contacts –other City staff to be included in general correspondence?

5. Meetings

- Meetings can be arranged when MSA or ICS is on site, if feasible.

6. Project Schedule

- Notice to Proceed – June 16, 2010
- Review design concepts with City– September, 2010
- Attend Public Works Commission Meeting – Date TBD
- Draft undergrounding feasibility report, City review – Date TBD
- Attend City Council Meeting Regarding Project Related Material – Date TBD
- Final undergrounding feasibility report, City review – Date TBD
- Final Completion Date – November, 2010

7. Submittals to City

- Draft undergrounding feasibility report
- Final undergrounding feasibility report

8. Other Discussion

- MSA will submit paper and digital copies of conceptual designs indicating utility corridor alternatives. What digital form does the City prefer – AutoCAD, Microstation, etc.
- MSA has experienced better response when property owners are contacted with City letterhead. Would the City submit a letter drafted by MSA to property owners along the area represented by the study? Property contact would be to facilitate locating basements/coal chutes encroaching in R/W.
- Can City provide a list of property owners and their contact information?
- Can City provide franchise agreements be provided to MSA for review? All utilities (overhead and underground) would be beneficial.
- Can City provide Pacific Power system mapping that was provided to the City March 12th be provided? (This mapping would be incorporated into our base map.)
- Would the City object to utility locating with paint?

9. Other?

CITY OF ROSEBURG
DOWNTOWN UTILITY UNDERGROUNDING FEASIBILITY STUDY
Project Kick Off Meeting Minutes

July 19, 2010, 12:00 PM

1. Opening Statements

2. Attendees: City of Roseburg:

Jeff Nelson P.E., Project Manager – 541-492-6730 Ext 3

Murray, Smith & Associates, Inc.
Bill Hollings P.E., Project Manager – 541-741-2975
Chris Link P.E., Project Engineer – 503-225-9010
Brett Garland, Staff Engineer – 541-741-2975
Devin Montgomery, Staff Engineer – 541-741-2975

(Kevin Thelin P.E., Principal-in-charge) – Not Present

3. Project Overview – Downtown Utility Undergrounding Feasibility Study

- Determine the feasibility of converting overhead utilities to underground along SE Main Street between SE Douglas Avenue and just south of SE Lane Avenue.
- Prepare conceptual designs
  ~ The City concurs that based on currently available utility mapping, it appears appropriate to consider two utility corridor alternatives.
- Prepare budget estimates
  ~ Budget estimates will address all considered corridor alternatives
- Provide Undergrounding Feasibility Report summarizing findings

4. Lines of Communication

- MSA (office contact number – 541-741-2975)
  - Project Manager - Bill Hollings, PE: hollingsw@msa-ep.com
  - Staff Engineer – Brett Garland, garland@msa-ep.com (main contact)
  - Project Engineer – Chris Link, linkc@msa-ep.com

- MSA Sub consultant (Integrated Consulting Services)
  - Local liaison, Clay Baumgartner, clay.baumgartner@yahoo.com

- City of Roseburg (office contact number – 541-492-6730 Ext 3)
  - Project Manager – Jeff Nelson, P.E: JNelson@cityofroseburg.org

- Additional City of Roseburg contacts –other City staff to be included in general correspondence?
  ~ All contact will be with City's Project Manager, Jeff Nelson

5. Meetings

- Meetings can be arranged when MSA or ICS is on site, if feasible.

6. Project Schedule

- Notice to Proceed – June 16, 2010
- Review Design Concepts with City staff – September, 2010
  ~ A mid September 2010 delivery date for the Design Concepts is appropriate.
- Draft Undergrounding Feasibility Report–
  ~ A mid October 2010 target delivery date for the Draft Feasibility Report is appropriate to facilitate Public Works Commission approval.
- Attend Public Works Commission Meeting ; date TBD
  ~ Public Works Commission meeting to occur in mid October.
- Attend City Council Meeting Regarding Project Related Material
  ~ Council meeting and City review to occur mid November, following PW Commission approval.
- Final undergrounding feasibility report
  ~ Project completion date: by the end of the year 2010.

7. Submittals to City

- Design Concepts
- Draft undergrounding feasibility report
- Final undergrounding feasibility report

8. Other Discussion

- MSA will submit paper and digital copies of conceptual designs indicating utility corridor alternatives. What digital form does the City prefer?
  ~ The City prefers all digital design work to be in AutoCAD.
- MSA has experienced better response when property owners are contacted using City letterhead. Could the City submit a letter drafted by MSA to property owners along the area represented by the study? (Property owner contact would be to facilitate locating basements/coal chutes encroaching in R/W.)
  ~ MSA will draft the letter to facilitate locating basements and coal chutes that are encroaching in right-of-way. The City will mail the letter on City letterhead to the appropriate property owners within the study area.
- Can City provide a list of property owners and their contact information?
  ~ Property list will not be required if the City mails the letters.
- Can City franchise agreements be provided to MSA for review? All utilities (overhead and underground) would be beneficial.
  ~ (Provided by City 7/21/2010.)
- Can City provide Pacific Power system mapping that was provided to the City March 12th be provided? (This mapping would be incorporated into our base map.)
  ~ (Provided by City 7/19/2010.)
- Would the City object to utility locating with paint?
  ~ The City does not object to utility locating with paint.

9. Other Action Items

~ ***MSA*** to provide City with examples of potential meter conversions to confirm City requirements or expectations for the utility overhead to underground conversion.

~ ***MSA*** to confirm City expectations regarding transformer locations; specifically whether transformers can be located above ground.

~ ***MSA*** to provide example photos of meter conversions and above ground transformers to City for internal consideration.

~ ***MSA*** to provide FTP site for the transfer of photos, digital design work and other relevant information.

~ There is currently no moratorium on street or sidewalk cuts, per email of 7/19/2010.

CITY OF ROSEBURG
DOWNTOWN UTILITY UNDERGROUNDING FEASIBILITY STUDY
Project Progress Meeting Agenda

August 17, 2010, 2:00 PM

1. Anticipated Attendees

City of Roseburg:	Jeff Nelson, P.E., Project Manager
Murray, Smith & Associates, Inc.	Bill Hollings, P.E., Project Manager Chris Link, P.E., Project Engineer Brett Garland, Staff Engineer

2. Project Status Review

- Obtained mapping from overhead and underground utilities
- Integrated utility provided mapping into base map
- Initial field verification of utilities – July 19, 2010
- City mailed letters to property owners – July 27, 2010
- Requested One-call field marking and mapping – Completed August 3, 2010
- Field verified utilities with provided paint marking – August 11, 2010
- Field verified reported underground spaces – August 11, 2010
- Conceptual undergrounding designs and estimates (submit mid September)
- Draft Undergrounding Feasibility Report (submit mid October)

3. Meetings

- Project kick-off meeting – July 19, 2010
- Onsite progress meeting – August 11, 2010
- Progress meeting - August 17, 2010
- Review conceptual designs with City staff – anticipated mid September 2010
- Public Works Commission meeting – anticipated mid October 2010
- City Council meeting – anticipated mid November 2010

4. Revised Project Schedule

5. Design Criteria / Design Brief

6. Conceptual Designs and Typical Corridor Cross Section

7. Other

- Coordination with property owners - update
- Stake holder acceptance of project
- City acceptance of above ground transformers; location options
- City acceptance of various service conversion options
- Other City discussion

CITY OF ROSEBURG
DOWNTOWN UTILITY UNDERGROUNDING FEASIBILITY STUDY
Project Progress Meeting Minutes

August 17, 2010, 1:15 PM to 2:30 PM

1. Attendees

City of Roseburg:	Jeff Nelson, P.E., Project Manager
Murray, Smith & Associates, Inc.	Bill Hollings, P.E., Project Manager Chris Link, P.E., Project Engineer Brett Garland, Staff Engineer

2. Project Status Review

- Obtained mapping from overhead and underground utilities
- Integrated utility provided mapping into base map
- Initial field verification of utilities – July 19, 2010
- City mailed letters to property owners – July 27, 2010
- Requested One-call field marking and mapping – Completed August 3, 2010
- Field verified utilities with provided paint marking – August 11, 2010
- Field verified reported underground spaces – August 11, 2010
- Conceptual undergrounding designs and estimates (submit mid September)
- Draft Undergrounding Feasibility Report (submit mid October)

3. Meetings

- Project kick-off meeting – July 19, 2010
- Onsite progress meeting – August 11, 2010
- Progress meeting - August 17, 2010
- Review conceptual designs with City staff – anticipated mid September 2010
- Public Works Commission meeting – anticipated mid October 2010
- City Council meeting – anticipated mid November 2010

~ The City noted that due to holidays in November and December, council meetings are often rescheduled or moved to following months, which may potentially impact current schedule of meetings. MSA understands that specific meeting dates are to be determined.

4. Revised Project Schedule

~ MSA will revise schedule as required to reflect project status and expectations (MSA and City).

5. Design Criteria / Design Brief

~ Project Limits - The City concurs the project limits identified in the sketch included with meeting package was accurate to the City's expectations.

~ Transformer Placement - The City indicated preference would be to locate transformers in parking lots or back lots and acknowledged that utility easements would be required.

~ Service Connections - The City indicated preference to option 3, but acknowledged service connection conversions would be on a case by case basis. MSA has completed photo documentation of service connections within the project limits.

~ Desired Amenities - The City concurs amenities could be included with the utility undergrounding, but is not necessary for the feasibility study. MSA to mention in report and to include as a line item in cost estimate, but will exclude an actual cost estimate as quantity of features cannot be determined at this level.
~ Historic District – MSA to contact Marion Thompson, senior planner City of Roseburg for information regarding construction requirements within project.
~ Underground Utility Clearance Requirements - The City to confirm clearance requirements for water and storm. MSA will confirm clearance requirements with other utilities including RUSA.
~ Street Restoration - The City indicated MSA to consider half street improvements for cost estimating for corridor within roadway. Other cost estimates to include are line striping and parking striping. For concrete repair, City requires full panel replacement.
~ Additional Utility Upgrading - The City indicated utilities would be notified well in advance to allow sufficient planning. The City would consider upgrades to water and storm beyond feasibility study.

6. Conceptual Designs and Typical Corridor Cross Section

~ The City would prefer to limit or reduce any jogs or significant bends in the utility corridor.

7. Other

- Coordination with property owners – update
~ MSA contacted multiple property owners during field verification visit 8/11/2010 and will continue to document properties that have and haven't responded to the City mailed letter. MSA will contact property owners as deemed necessary to identify potential conflicts.
- Stake holder acceptance of project
~ MSA noted general acceptance of the project indicated by business owners within the area.
- City acceptance of above ground transformers; location options
~ Refer to comments indicated above in section 5.
- City acceptance of various service conversion options
~ Refer to comments indicated above in section 5.
- Other City discussion
~ City provided local contact for Qwest – Chalin (Johnny) Hutasangkas 503-399-4339 (chalin.hutasangkas@qwest.com).
~ City provided additional contact information for RUSA contact – Greg O'Neil 541-430-5852 (cell).

CITY OF ROSEBURG
DOWNTOWN UTILITY UNDERGROUNDING FEASIBILITY STUDY
Project Progress Meeting Agenda

October 19, 2010, 1:30 PM

1. Anticipated Attendees

City of Roseburg:	Jeff Nelson, P.E., Project Manager
Murray, Smith & Associates, Inc.	Bill Hollings, P.E., Project Manager Brett Garland, EIT., Staff Engineer

2. Project Status Review

- Obtained mapping from overhead and underground utilities
- Integrated utility provided mapping into base map
- Initial field verification of utilities – July 19, 2010
- City mailed letters to property owners – July 27, 2010
- Requested One-call field marking and mapping – Completed August 3, 2010
- Field verified utilities with provided paint marking – August 11, 2010
- Field verified reported underground spaces – August 11, 2010
- Conceptual undergrounding design and estimate – October 7, 2010
- Draft Undergrounding Feasibility Report – In Progress

3. Meetings

- Project kick-off meeting – July 19, 2010
- Onsite progress meeting – August 11, 2010
- Progress meeting - August 17, 2010
- Submit conceptual designs with City – October 7, 2010
- Review conceptual design with City staff – October 19, 2010
- Public Works Commission meeting – TBD
- City Council meeting – anticipated mid November 2010

4. Draft Conceptual Design and Typical Corridor Cross Section

5. Draft Cost Estimate

5. Other

- Other City discussion

City of Roseburg
Downtown Utility Undergrounding Feasibility Study
Draft Conceptual Design Comments

Date Comments Received: 10/25/2010

City of Roseburg Draft Conceptual Design Comments	MSA - Action/Comment
Utility Cross Section Detail	
Re-write note number 2 to state Water, Storm and any other drainage line will not share the same trench as the utilities.	Concur
Add note that indicates trench backfill per utility purveyor	Concur
Add additional information regarding vertical separation from other existing utilities	Additional information to be added
Conceptual Sheets	
Add legend to every sheet	
Identify easements outside of right-of-way	Easements have been added to the plan sheets
Sheet 1 - Thought undergrounding would start at utility pole on the NW corner of the Mosher and SE Main intersection?	Original study area map identified boundaries at utility pole located mid block between Mosher and Lane on west side of SE Main Street. Undergrounding is also dependant of available power and power requirements.
Sheet 2 - Concern with location of 575 section cabinet. Need to consider clear vision areas at all driveways and intersections per City of Roseburg codes.	Adjusted Plan Sheets to consider clear vision areas
General - Besides Pacific Power surface equipment, can the communications utilities locate their cabinets underground in vaults rather than surface mounted cabinets?	Communication companies have indicated preference of surface mounted cabinets. Recommend pursuing further during design.
General - What is the typical size of the cabinets proposed for the communication utilities?	The cabinet size indicated by the communication utilities is 24" wide x 12" deep x 57" tall.
The City would prefer to see the conceptual design use sheet 7A as the part of the corridor alignment rather than Sheet 7B which requires additional easement purchase and boring techniques.	The conceptual design illustrated on Sheet 7B incorporates recommendations made by Pacific Power. This alignment allows Pacific Power to meet current power requirements. Pacific Power did not dismiss the alignment identified on Sheet 7A, but did indicate potential power supply issues.


MSA
Murray, Smith & Associates, Inc.
Engineers/Planners