

**CITY OF GRIDLEY**

**PUBLICWORKS CONSTRUCTION STANDARDS**

In Accordance With

Title 15, Chapter 06, Section 010 of the

Gridley Municipal Code and

ADOPTED BY RESOLUTION NO. 50

of the

GRIDLEY CITY COUNCIL

September 16, 1991

Revised by Resolution No. 2016-R-036

December 19, 2016

## INTRODUCTION

The Public Works Construction Standards are intended to be used in conjunction with the State of California Department of Transportation Standard Specifications, as amended, and all requirements pursuant to the General Construction Permit of the State of California, as amended, for all work.

Earthwork, grading, paving, and concrete work shall conform to the applicable sections of the State Standard Specifications, unless modified by these Construction Standards.

The City of Gridley developed the Public Works Construction Standards (PWCS) to mitigate design constraints as follows:

- Generally level slope grades 1-2%.
- High groundwater table at all times.
- Some unstable soils below the groundwater table.
- Storm drainage outfalls into Reclamation District agricultural drainage channels.

The Public Works Construction Standards will help to provide:

- Accurate establishment of grades, and careful construction practices to maintain the design grades.
- Watertightness of gravity pipelines and structures.
- Adequate construction and safety procedures regarding shoring, bracing, and dewatering of all excavations.
- Building pad elevations established above potential high water elevations, with adequate lot grading to the back of sidewalk.
- Storm drainage detention facilities designed to limit peak flows.

## GENERAL DESIGN CRITERIA

**GENERAL DESIGN CRITERIA** shall apply to the design of all improvements within the City of Gridley which are subject to review by the City Engineer.

**DRAWINGS** shall be on standard size sheets (8-1/2" x 11", 11" x 17", 17" x 22", 18" x 24", 22" x 34", or 24" x 36") with standard title block. All lettering shall be a minimum of 0.10" or 1/8" or larger to permit photographic reduction.

**TITLE SHEETS** shall have an index or key map clearly indicating the sheet numbers for all drawings.

**DESIGN ENGINEER AS DESIGNER, ARCHITECT, OR REGISTERED ENGINEER** shall sign each sheet applicable to the field. Designs for structures and other on and off site improvements which are required by law to be designed by a Registered Engineer or Architect shall be stamped and signed.

**SOILS REPORT** shall, when required, be signed by a Registered Engineer or Registered Geotechnical Engineer.

**REVISIONS TO ORIGINAL DRAWINGS** must be notated on the drawing, dated, and Initialed by the Engineer of Record and approved by the City Engineer and the Department of Public Works.

**IMPROVEMENTS** are to be designed and constructed in accordance with these Public Works Construction Standards.

**SUBDIVISIONS** shall have improvement drawings showing overall layout of the water, sewer, electrical and gas distribution systems, storm drainage, and streets. Public utility locations shall be shown on the "as-built" plans for all projects and shall be provided to the City at the completion of the project .

**PROFILES** shall be shown on the improvement drawings for streets and street improvements. Vertical curves shall show all curve data, i.e.length, beginning, ending, P.I., etc. Typical design data shall be shown on all sheets, i.e., elevations, stationing, etc.

**SCALE** for improvement shall be a minimum of 1" = 40' for the horizontal and 1" = 2' for the vertical. The vertical scale may be changed to 1" = 5', or other appropriate scale where depths are great. For complex plans the scale may be 1" = 20' or larger as necessary for clarity.

**IMPROVEMENT PLANS** shall be prepared in ink on mylar, unless otherwise approved by the City Engineer and the Department of Public Works.

**STREET SURVEY CONTROL**, horizontal and vertical, storm drainage, subdivision boundary and lot calculations, shall accompany all submittals for checking and approval by the City Engineer and the Public Works Department.

**STORM WATER POLLUTION PREVENTION PLAN** shall be provided for each project that requires such under the State of California General Construction Permit for water pollution prevention and the implementation of Best Management Practices, inspections, and reporting to meet the State requirements prepared by and conducted by a Qualified Stormwater Developer (QSD) and Qualified Stormwater Practitioner (QSP).

**IMPROVEMENT BONDS** shall include a detailed cost estimate, prepared by the Design Engineer, and approved by the City Engineer.

**ORIGINAL DRAWINGS** shall be revised by the Design Engineer stamped and signed "as-built" to reflect the actual "as-built" conditions, and duplicate or photographic mylar copies shall be furnished to the City prior to final acceptance of the work by the City.

## IMPROVEMENT PLANS - REQUIRED CONTENTS

1. Project Title
2. Project Design Credits:
  - a. Designer 's Signature Date
  - b. Scale
  - c. Project Approval Signature
3. Existing pertinent topography, (i.e., street, curb, gutters, storm drains and all drainage facilities, sanitary sewers, water electric, and gas line, trees, creeks, , and other features that will effect design, existing right-of-way (R/W) , property lines, street names.)
4. Profiles of existing improvements and/or ground.
5. Location of proposed improvements:
  - a. Right-of-Way (R/W), easements, etc.
  - b. Horizontal control points (2 min.) with ties, North arrow, contours
  - c. A minimum of 2 benchmarks on City Datum with location, description, elevations. Project stationing (Reading left to right)
  - d. Typical sections of work Cross-sections as required Profiles of all improvements
6. Horizontal and Vertical Curves:
  - a. Begin Curve (B.C. & B.V.C. or P.V.C.)
  - b. End Curve (E.C. & E.V.C.)
  - c. Point of Intersection (P.I. & P.V.1.)
  - d. Invert Station and Elevations:
  - e. All Structures Gravity Pipelines
7. General Design Data Grades
  - a. Lengths of design element hydraulic gradient
  - b. Energy gradient
  - c. Other design data as required
8. Special Notes
9. References to Public Works Construction Standards
10. Drawing Legend

## **SURVEY MONUMENTATION**

### **SURVEY MONUMENTS**

The procedure and practice of all survey work done upon any subdivision shall conform to the accepted standards of the engineering profession.

All monuments shall not be less substantial than a 3/4-inch diameter iron pipe or 5/8-inch diameter steel reinforcing bar, 18 inches long with a brass tag or plastic cap bearing the registration number of the engineer or surveyor who set the monument, and shall be subject to inspection and approval by the City Engineer. "Permanent" monuments shall be set in concrete. Before street improvements are accepted, all monuments disturbed by the improvements shall be reset.

In making the survey for a subdivision, the engineer or surveyor shall set "permanent" monuments at all angle and curve points on the exterior boundaries of the subdivision, in all street intersections, at all angle points of street lines, and at all points of curvature, both simple and compound, of street lines. "Permanent" monuments at street intersections and at angle and curved points of street lines shall be set on street centerlines, unless otherwise directed by the City Engineer; provided, however, that the "permanent" monuments need not be set at intervals of less than 400 feet.

The "permanent" monuments shall be set in the ground upright with the metal marker centered in the concrete, by excavating a six-inch minimum diameter hole two feet below the finished grade and pouring the same full of concrete. When streets are required to be paved, the location of such monument and access thereto shall be given by a suitable concrete or cast-iron sliding sleeve surmounted by a circular cast-iron frame and lid at street surface per standard number G2 of the State Specifications or as modified by the City Engineer. In case the monument is not in a street, the metal marker may be set flush with the existing ground surface.

The engineer or surveyor shall set monuments at all lot corners and at all curve points on lot boundary lines.

There shall be one or more permanent bench marks for each subdivision, of a type approved by the City Engineer and referred to the City Datum, set at each street intersection in the curb return or other location approved by the City Engineer. The bench mark shall be a brass disc two inches  $\pm$  in diameter, set in concrete.

## STREET DESIGN CRITERIA

The design, layout, width, circulation, and other aspects of streets, both public and private, shall conform to the locations shown on the Circulation Element of the General Plan and approved by the City Engineer and the Public Works Department.

The final improvement plans for streets shall show the survey monuments and rights-of-way referenced to existing property corners, width of paving, and all improvements, i.e. sanitary sewer system, storm drain system, concrete curb, concrete gutter. The widths and locations of adjacent streets shall be shown referenced to centerline stationing or monuments on the final improvement plans for streets.

### STREET WIDTHS [1]

Class	Lane Width	Right-of-Way (R/W) Width	On-Street Parking Permitted?	Bicycle Lanes Permitted?
<b>Thoroughfares &amp; Arterials</b>				
Arterial	12'	60'-84'	No	No
Industrial streets	14'	84'	Yes – 10' Both Sides	No
<b>Collectors</b>				
Major collector	11'	50'-60'	No	Yes -- 5' Both Sides
Minor collector	10'	66'-74'	Yes -- 8' Both Sides	Yes -- 5' Both Sides
Local streets	10'	56-64'	Yes -- 8' Both Sides	No

Notes:

[1] An exception to street width dimensions shall be permitted for incorporating stormwater management features or alternative landscape parkway designs, where the sidewalk and landscaping area is greater than 20 feet.

The width of the roadway shall be measured perpendicular or radial to the centerline. Any exceptions to the above widths must be submitted to, and approved by, the City Engineer and the Public Works Department.

Intersections of arterials, depending on estimated traffic volumes, may require special design. The need for single and double left turn pockets, free right turn lanes, right turn islands, raised medians, etc., shall be investigated.

Where feasible, when streets are improved for only one-half widths, the unimproved half shall drain away from the paved section and shall be provided with an adequate ditch.

Typical street cross-sections shall be based on 8-foot parking lanes, allowed only on minor collector and local streets and 10-foot width for Industrial travel lanes. If an additional 10-foot width is added to the following width of travel lanes, on street parking may be allowed at the discretion of the City Engineer:

Arterial Streets	12'
Major Collector Streets	11'

### **STREET GRADES**

Maximum street grades shall not exceed the following limits:

Arterial Streets	8%
Major, Minor Collector Streets	10%
Local Streets	15%

Minimum street grades shall not be less than 0.25% unless authorized by the City Engineer.

The gradient of a street entering an intersection shall not be more than ADA compliance allowances at the intersection(s).

Vertical curves are required when grade breaks exceed 1.0%. Vertical curves shall be made with parabolic vertical curves determined by minimum stopping sight distance and good engineering practice established by the City Engineer and the Department of Public Works.

### **STREET IMPROVEMENTS**

Concrete curbs and gutters shall conform to these Public Works Construction Standards. The minimum grade for curbs and gutters shall be 0.25 % unless a reduction is authorized by the City Public Works Department. Rolled curb and gutter shall only be permitted in residential areas on local streets which do not have existing vertical curb and gutter. Installation of rolled curb and gutter on streets which have existing vertical curb and gutter must have specific approval by the Director of Public Works or the City Engineer.

Street improvement plans shall show curb and gutter profiles, including profiles for all curb returns and any approved cul-de-sacs. (Cul-de-sacs require specific approval of the Department of Public Works.)

Concrete sidewalk shall conform to the City Public Works Construction Standards, 5-foot or 9.5-foot wide exclusive of curbs (11.5-foot for existing streets), and no less than four inches thickness for public and private sidewalks, and six inches thickness for driveways.

Concrete sidewalks may be either adjacent and contiguous in design and construction to curbs and gutters or a non-contiguous parkway sidewalk. Where existing subdivisions and tracts have separated sidewalks with landscape parkway, sidewalk infill shall conform to the existing design. Expansion joints shall be provided at 20-foot maximum spacing, as required for the curb and gutter.

Curb returns shall be constructed on a curve having a radius equal to that shown below:

Class	(Min.) Curb Return Radius
Local Street Intersections	20'
Cul-de-sac	40'
Minor Collector Streets	25'
Major Collector Streets	30'
Arterial Street Intersections	30'

Curb and gutter shall be carefully constructed to the design lines and grades. The extremely flat grades necessary in the City of Gridley requires particularly careful construction to maintain flowline and lip of gutter grades within 0.02-feet of design grades at all locations.

**STREET IMPROVEMENTS**

Tops of curbs and lips of gutters shall be straight and uniform, and within 1/8" of a 10-foot long straightedge at all locations on straight sections.

The stringent alignment and grade control necessary for minimum grades requires extreme care in the use of extruding machines to construct curb and gutter, and control shall be carefully checked for alignment and grade immediately before pouring.

Any curb and gutter which fails to meet the alignment and grade requirements shall be removed and replaced at no cost to the City.

### **SIDEWALK REQUIREMENT**

The principal reason for a sidewalk is pedestrian safety. The sidewalk gives the pedestrian a place to walk outside of the vehicular travel lanes. The City's experience has been that graded or graveled areas have not been a satisfactory replacement for sidewalks as property owners' plants, vegetation, landscaping, or fences force people into the street.

Curb and gutter is required to protect the edge of the pavement, to channel storm drainage to collection points, to define the right-of-way for vehicular traffic, to make better use of the City's street sweeping program, and to protect pedestrian sidewalk traffic. Curb and gutter reduces the City's street maintenance costs, establishes reference points for property lines, and shows where underground utilities are stubbed out.

### **SIDEWALK REQUIREMENT BY PERMIT**

Generally, curb, gutter, and sidewalk are required for all new development in the City. Several exceptions to the basic policy will be discussed later. The sidewalk requirement occurs in several areas under City procedures:

### **BUILDING PERMITS**

Pursuant to Section 12 of the Gridley Municipal Code, any person obtaining a building permit to construct a new residence or develop property is required to construct curb, gutter, and sidewalk along all public street frontages adjacent to the lot. In addition, the builder or developer is required to pave between the edge of the existing street and the gutter. In situations where it is not practical to set grades for the improvements, the property owner must sign a "Deferred Improvement Agreement" that essentially provides that curb, gutter, and sidewalk will be installed upon demand by the City. This agreement also amounts to an automatic "yes" vote in any future assessment district for street improvements.

### **SUBDIVISIONS**

It is the policy of the City that sidewalks are required as a condition of approval of any subdivision. For subdivisions by final map, sidewalk is required prior to the recording of the final map. For subdivisions by parcel map, sidewalk is required at the time of development. The map condition requiring sidewalk construction shall be noted on the recorded parcel map.

## **USE PERMITS, SITE PLAN REVIEWS, AND VARIANCES**

Curb, gutter, and sidewalk are also required as a condition of approval of use permits, site plan reviews, and variances. In addition, the developer is also required to pave between the edge of the existing pavement and gutter. Generally the conditions on these applications are more of an information item since most would fall under the building permit requirements.

## **SIDEWALK REQUIREMENT BY STREET CLASSIFICATION**

There is some variation in the sidewalk requirements for property depending upon the street classification. In all cases, curb, gutter, and sidewalk are required. By type of street, sidewalk varies as follows:

<b>Arterial:</b>	5-12 foot sidewalk on both sides of the street.
<b>Major and Minor Collector:</b>	5-12 foot sidewalk on both sides of the street.
<b>Local:</b>	5-6 foot sidewalk on both sides of the street.
<b>Industrial:</b>	4-6 foot sidewalk on one side of the street only.

For all uses within the Downtown Mixed-Use designations in the City, along the Highway 99 corridor, and in new designated Neighborhood Mixed-Use areas, sidewalks shall be a minimum width of 6 feet.

## **SIDEWALK REQUIRED BY LAND USE**

### **PRIVATE STREETS AND MOBILE HOME PARKS**

Private Streets and mobile home parks are treated somewhat different in that curb, gutter, and sidewalk are only required on the public street frontages. Internal roads within the projects are private, thus no sidewalk requirement is made.

## **STREET TREE WELL LOCATION CRITERIA**

The only situations where tree wells for trees are specified are in commercial, mixed-use, or industrial areas where full width commercial sidewalk (curb to property line) is to be constructed. This results in a total sidewalk width of 9-1/2 to 11-1/2-feet, and there is enough room for the construction of a tree well immediately behind the curb and to allow for the passage of pedestrians around the tree. Do not attempt to place tree wells in any sidewalk narrower than 7-1/2-feet. Some of the most common obstacles to pedestrians are signs, utility poles, hydrants, parking meters, and building doors that swing out.

The general guidelines relating to the spacing of trees are that they be located no closer than 25 to 30-feet to intersections, with a spacing between trees most suitable for mature growth, and no tree is to be planted closer than 6-feet to an interior property line or a driveway. The former instance is to clearly indicate to a property owner that the tree is in front of their property and not on a common lot line where adjacent property owners could have conflicting views regarding tree maintenance or removal. Clearance to driveway locations is to insure that the tree does not create a blind spot for motorists attempting to exit the driveway into oncoming traffic.

Regarding the spacing of trees along the streets, a number of considerations are involved in addition to the above mentioned intersection, property lines, and driveways. Power poles, street light standards, fire hydrants, the location of underground utilities and services, the placement of parking meters and stalls along the street, and the architecture of a building itself often dictates when and where a tree is to be located. Do not place a tree immediately next to a parking meter where a person cannot get to the meter or in the middle of a parking stall so that it hinders or obstructs a person from opening a car door to enter or exit a vehicle.

Do not place a tree so close to power poles and street lights that the spread of the tree would interfere with access to the pole by utility companies or obliterates the lighting effect from the street lights, nor so close to a fire hydrant that it hinders the Fire Department's use of the hydrant.

Do not locate trees adjacent to water meters, nor over utility service lines. Consideration should be given to height clearances for traffic control signs and street sweeper operation in the selection of trees for planting.

Tree locations should be coordinated with building designs to provide shade for energy conservation without obstructing entrances or windows.

All tree wells shall be provided with a root barrier to ensure roots are directed downward.

## **DRIVEWAY STANDARDS AND CRITERIA**

### **DRIVEWAYS – GENERAL**

All driveway approaches in City right-of-way shall be constructed in conformance with these Public Works Construction Standards or as modified for special situations described herein.

1. A residential driveway apron shall be constructed between the curb and the property line with Portland cement concrete per driveway standards.

2. A commercial driveway apron to a parking lot or "drive-in" business shall be constructed between the curb and the property line with portland cement concrete, per driveway standards.
3. An industrial driveway apron shall be constructed between the curb and the property line with an approved Portland cement concrete structural section, based on the amount of truck traffic (TI) and ability of the soil (R-value) to withstand truck wheel loads.
4. In all cases, it shall be the responsibility of the abutting property owner to maintain the driveway apron in a safe and suitable condition for the traffic to be carried, whether pedestrian or vehicular.

#### **COMMERCIAL - INDUSTRIAL HIGH VOLUME DRIVEWAYS**

Commercial and industrial driveways that serve a substantial number of vehicles or trucks shall have dimensions, sight distance, geometrics, spacing, etc., determined by the City Engineer.

#### **ONE-WAY DRIVEWAYS**

One-Way entrance or exit driveways shall conform to these Public Works Construction Standards for commercial driveways or as modified by the City Engineer for special situations.

#### **AMOUNT OF FRONTAGE ALLOWED FOR DRIVEWAYS**

Not more than 60 percent of the frontage of any parcel may be devoted to driveways.

#### **DRIVEWAY WIDTH "W"**

The total width of driveways shall be measured between full height curb.

#### **MINIMUM WIDTH "W"**

1. The minimum width of driveways for one and two family residences shall provide for a bottom width of 12 feet, exclusive of the transition to full curb height at both ends.
2. The minimum width of non-residential driveways shall provide for the safe, efficient, and economical movement of traffic and should be approximately 24 feet for two-way streets, exclusive of the transition to full curb height at both ends. This driveway width may be reduced to 16 feet for one-way streets.

### **MAXIMUM WIDTH "W"**

1. The maximum width of driveways for one and two family residences shall provide for a bottom width of 24 feet, exclusive of the transition to full curb height at both ends.
2. The maximum width of all commercial driveways shall be 35 feet, exclusive of the transition to full curb height at both ends, except this may be increased by the City Engineer where necessary to provide for the safe, efficient, and economical movement of traffic.
3. In the case of a driveway located adjacent to an alley, if approved by the City Engineer. The driveway apron may not be combined with the alley but the total combined width shall not exceed 40 feet.
4. The driveway width may be modified by the City Engineer to facilitate turning movements where curb lanes are used.

### **DISTANCE BETWEEN DRIVEWAYS**

1. The minimum length of full height curb between a driveway and a side property line shall be three (3) feet.
2. The minimum length of full height curb between driveways on adjacent lots shall be six (6) feet unless specific approval of a shorter length is given by the City Engineer.
3. No driveway shall be located closer than six (6) feet from an existing or future alley entrance except as provided elsewhere in these standards.
4. Where two or more driveways are constructed on the same lot, the minimum length of full height curb between driveways shall be 24 feet. Where practical to provide parking, the total length of full height curb between driveways shall be in multiples of 20 feet.

### **DRIVEWAY GRADE (SLOPE)**

The maximum grade for driveways shall be limited to 12.5% or as directed by the City Engineer. Eight percent is a desirable maximum for commercial and industrial driveways.

### **DRIVEWAY DISTANCES FROM UTILITY OR SAFETY DEVICES**

No driveway shall be located closer than five (5) feet from a fire hydrant, traffic signal, street light standard, utility pole, or guy wire.

## UTILITY RELOCATION

Relocation of utility company's facilities or other public improvements to accommodate a driveway shall be accomplished without cost to the City.

## SIGNAL AND ELECTRICAL CONDUIT

Where traffic signal or highway lighting is planned or anticipated, a minimum of one 2-inch PVC-P&C TC-6 conduit shall be placed under any new driveway apron and extend a minimum of one foot beyond the ends of the driveway. The conduit shall be placed behind, and a minimum of 24 inches below, the top of curb.

## REMOVAL OF EXISTING DRIVEWAYS

When driveway construction is to take place on a parcel, any abandoned driveways shall be removed and replaced with standard curb, gutter, and sidewalk concurrently with the new construction and without cost to the City.

## MODIFICATION

The above standards may be modified by the City Engineer for hardship conditions or where necessary to provide for the safe and efficient movement of traffic.

## INTERSECTIONS

Class	Tangent Distance Required at Street Intersections
Local Street	50'
Collector Street	100'
Arterial Street	Require Special Design

Deviation from the above design standards shall be approved by the City Department of Public Works.

The centerline of streets entering upon opposite sides of any given street shall normally align, or shall be offset by at least 200 feet for local residential streets and 300 feet for all other streets. Local streets shall normally be designed as "T" type intersections.

Cul-De-Sacs: Dead-end streets require special approval by the City Engineer, and if approved shall terminate in a paved turn-around and shall have a 40-foot minimum curb line radius at the

tum-around. If approved, cul-de-sacs shall not exceed 500 feet in length, measured from the centerline of the intersecting street to the center of the cul-de-sac "bulb."

### **HORIZONTAL CURVES**

The radius of curvature in the centerline of the street shall be not less than:

Arterial Streets	650'
Major and Minor Collector Streets	200'
Local Streets	75'

Superelevation Rate: -2% from the center line towards the right-of-way line shall be typical cross slope. Deviation from the typical superelevation rate shall be considered due to gutter drainage run-off, horizontal curve requirements, etc.

### **STRUCTURAL SECTION:**

Structural design of pavement, which includes the structural section to be used, shall be based on soil tests results, the TI (Traffic Index), and standard gravel equivalent calculations according to good engineering practice and shall be approved by the City Public Works Department.

Slopes: Earth slopes in cut or embankment sections shall not be steeper than two feet horizontal to one-foot vertical, unless steeper slopes have been approved by the City Public Works Department based on a soil report.

### **STREET LIGHTS**

Street lights shall be located as directed by the Gridley Electric Department, and shall be 100Watt High Pressure Sodium Lights or low-emitting diode (LED) lighting fixtures installed on 25-foot tapered steel poles with 8-foot arms, as approved by the City Engineer. Pole bases shall be in accordance with the Standard Details.

## COMPACTION DENSITY REQUIREMENTS IN STREETS

To clarify City requirements for the compaction of street subgrade and base materials, the following criteria shall apply:

1. Maximum Density - Optimum moisture relationships (compaction tests), will be determined in accordance with ASTM D 1557, Method C, (dry density).
2. Subgrade shall be:
  - a. Compacted to a relative compaction of 92 percent for all soil material (cohesive, clay).
  - b. Compacted to a relative compaction of 95 percent for all granular material (non-cohesive, granular soils).
  - c. Aggregate base shall be compacted to 95 percent relative compaction.
  - d. Asphalt concrete pavement shall be compacted to 95 percent relative compaction (ASTM D 1188 Test Method).
  - e. Class A or B backfill for trenches shall be compacted to 95 percent relative compaction. Class C backfill for trenches shall be compacted to 92 percent relative compaction.
3. Compaction test results will be acceptable as meeting the 95 percent requirement if the average of all tests is 95 percent with no individual test lower than 93 percent.
4. Compaction tests will be acceptable as meeting the 92 percent requirement if the average of all tests is 92 percent with no individual test lower than 90 percent.

## WATER SYSTEM DESIGN CRITERIA

### PIPE MATERIALS FOR MAINS

Ductile Iron Pipe  
PVC Pipe - AWWA C900 Cast Iron Dimensions

### MINIMUM PIPE SIZES FOR MAINS

6" for looped mains and interconnections 8" for unlooped mains  
10" for transmission mains between wells

**VALVES** shall be resilient wedge gate valves installed in accordance with the standard details. A sufficient number of valves shall be provided to permit isolation of each main, not more than 600 feet in length.

**FIRE HYDRANTS** shall be dry barrel hydrants, Waterous Pacer WB-67 located as directed by the Fire Chief, and not more than 400 feet apart. Hydrant installation shall be in accordance with the City Standard Details.

**SERVICES** shall be installed in accordance with the Standard Details. All water services shall be single services, 1" minimum diameter. Backflow prevention devices shall be installed on all services to property with access to water from a private well or separate water service, and on all services to properties with potential contamination sources, as determined by the City Engineer and/or the California State Department of Health Services.

**MINIMUM COVER** for water mains shall be 30 inches, with 36 inches of cover desirable whenever possible.

### CROSS-CONNECTION CONTROL ON FIRE SPRINKLER SYSTEMS

Considerable confusion has arisen regarding the intent and purpose of AB 2503, Chapter 425, Statutes of 1982, which adds Section 13114.7 to the Health and Safety Code. Any regulations implementing the provisions of Section 13114.7 of the Health and Safety Code must be promulgated or approved by the State Fire Marshal in accordance with Section 11342.3 of the Government Code.

Section 13114.7 makes it clear that no backflow prevention devices other than those specified in the Standards of the National Fire Protection Association (NFPA) may be required for Class I and II fire sprinkler systems. Class I automatic fire sprinkler systems are those

systems supplied by public water mains only (i.e., no pumps, tanks or reservoirs, physical connection from other water supplies, and no anti-freeze or other additives of any kind).

Class II systems are the same except that booster pumps, whose sole source of supply is the public water system, may be installed in the connection from the street main.

## **WATER SYSTEM DESIGN CRITERIA**

Automatic fire sprinkler systems which have cross-connections to unapproved sources of water, in addition to being connected to the public water mains, shall have backflow protection as required by American Water Works Association M-14 for Class III, IV, V, and VI fire systems.

All automatic fire sprinkler systems shall be installed in accordance with provisions of NFPA # 13, "Installation of Sprinkler Systems". All systems shall have a fire department connection as required by NFPA #13, unless waived by the Fire Chief. All Class I and II automatic fire sprinkler systems, as with all fire extinguishing systems, shall be serviced and maintained on a regular basis in accordance with the provisions of Chapter 1.8 (starting with Section 13195) of Part 2 of Division 12 of the Health and Safety Code.

In accordance with NFPA #13, each automatic fire sprinkler system shall have an alarm check valve, or equivalent, which is listed and approved for fire system use. Each fire department connection shall have a listed check valve as required by NFPA #13. Further, the fire department connection shall be attached to the sprinkler system above the alarm check valve assembly and not on the supply side. Class I and II systems connected to public mains only do not require double backflow protection devices. Since Class I and II systems are located on public water mains and fire hydrants, the public mains shall be used for supplementary water except in cases of extreme emergency situations where a fire progresses beyond the design criteria of the system and additional water, either in volume or pressure, is required to control the fire situation.

When such added water is needed, it shall be taken from fire hydrants on the public mains through the appropriate fire department pumper and hose lines. The connection shall not be used to pump water from any source other than the public water system.

Connections to the existing water system shall be made only at locations approved by the City Engineer. A gate valve shall be provided at the point of connection to isolate the new water mains from the existing system. All work related to the connection shall be done by the Contractor with full-time inspection by the Department of Public Works.

Hot tap connections shall be avoided, if possible, and will not be allowed on existing steel pipelines, nor when the diameter of the service line is greater than 2/3 of the diameter of the main. If hot tapping is approved by the City Engineer, the Contractor shall have the tapping sleeve and valve fully installed, thrust blocked, supported, and approved by the City prior to making the hot tap, and the tap shall be the full nominal diameter of the tapping sleeve and

valve.

### **HYDROSTATIC TESTS**

All parts of the entire pipeline installation shall be tested at 100 psi minimum pressure, or a pressure of 50 psi above the maximum working pressure. Tests shall be made in the presence of the City Engineer or his representative.

Before the test, the pipeline shall be sufficiently anchored to withstand the test pressure. During the filling of the line with water, precautions shall be taken to prevent air pockets at high points. Water may be allowed to stand in the line for several hours prior to the test. During the test, which shall be conducted for the time period determined by the City Engineer, but not less than two (2) hours, the leakage shall not exceed 5 gallons per 24 hours per thousand feet of pipe per inch of nominal diameter. Test sections shall be as short as valve configurations permit. If any valved section of pipe shows greater leakage than specified, the Contractor shall locate and repair the leaks and shall retest that section of line at no additional cost to the Owner.

### **FLUSHING AND STERILIZATION OF COMPLETED MAINS**

In general, the methods outlined in AWWA C601 entitled, "Disinfecting Water Mains," should be used as a guide in performing this operation where applicable.

Preliminary flushing of completed lines prior to chlorination shall be accomplished as thoroughly as possible with the water pressure and outlets available. The flushing shall be done after the pressure tests have been made.

Before being placed in service, the entire line shall be chlorinated. Chlorine shall be applied by one of the following methods: Liquid chlorine, gas-water mixture, fed-chlorine gas, or calcium hypochlorite water mixture, unless another method (such as Chlorine "HTH" Tablets) is approved by the City Engineer. The chlorinating agent shall be applied at the beginning of each section adjacent to the feeder connection and shall be injected through a corporation cock, hydrant, or other connection ensuring treatment of the entire line.

Water shall be fed slowly into the line with chlorine applied in amounts to produce a dosage of 40-50 parts per million. Portions of the existing mains which have been connected to a new line or otherwise contaminated by construction shall be included in the system sterilized. A residual of not less than 10 parts per million after 24 hours shall be produced in all parts of the line. During the chlorination process, all valves shall be operated.

If disinfection by chlorine "HTH" tablets is permitted by the City Engineer, the tablets shall be

secured to the top of the pipe with an approved adhesive.

After chlorination, the water shall be flushed from the lines at the extremities until the replacement water tests are equal, chemically and bacteriologically, to those of the permanent water supply.

## SANITARY SEWER DESIGN CRITERIA

### MAIN LINE SEWERS

Minimum pipe size shall be 8".

Pipe material shall be polyvinyl chloride, or ductile cast iron.

Joints shall be approved ASTM standard flexible gasketed joints for the pipe material used.

Design calculations shall be submitted to verify line size and bedding design, as well as Class or Type of pipe.

Manning "N" values to be used:

PVC        N = 0.010

DIP N = 0.012

All dead ends shall have a Standard Rodhole not more than 200 feet from a manhole.

Minimum slopes shall be selected to maintain a minimum velocity of 2 FPS, with the pipe flowing full.

### GRADE

The sanitary sewer shall be accurately constructed to the design lines and grades. The extremely flat grades necessary in the City of Gridley require particularly careful construction to maintain invert grades within  $\pm 0.02$  feet vertically, and  $\pm 0.05$  feet horizontally.

### DESIGN FLOW CRITERIA

Domestic: In residential areas, use 250 gallons per day per "equivalent household unit" for average daily flow. Maximum domestic flows should be based on the ratio of peak to average flows as determined by using a Peak Factor of:

$$PF = 2.80 \times Q_{c-o.i}^{.55} \text{ (Q in MGD)}$$

$$PF = 7.72 \times Q_{c-o.i}^{.55} \text{ (Q in GPM)}$$

Design flows shall be the peak domestic flows plus 200 gallons per acre per day allowance for stormwater inflow and groundwater infiltration.

## **WATERTIGHTNESS TESTING**

Tests for watertightness shall be made in the presence of a City representative. The Contractor shall furnish all labor, materials, tools, and equipment required to make the tests. No testing for final acceptance of the pipeline will be done until the trench has been fully backfilled and acceptably compacted to finish grade or pavement subgrade.

All sections of pipe shall be tested, and tests shall be made from manhole to manhole. The sewer shall be complete with laterals, if any. Exfiltration tests shall be made with air except where the use of water is approved by the City Engineer. Air shall be slowly supplied to the plugged pipeline installation until the internal air pressure reaches 4.0 p.s.i. greater than the average back pressure of any groundwater that may submerge the pipe. At least two minutes shall be allowed for temperature stabilization. The rate of air loss shall then be determined by measuring the time required for the internal pressure to decrease from 3.0 p.s.i. to 2.5 p.s.i. greater than the average backpressure of any groundwater that may submerge the pipe. Pipelines shall be considered acceptable when the time required for the 0.5 p.s.i. pressure drop is greater than:

Test Time (secs.) = 36.3 x Pipe Diameter in inches.

PVC or DIP at 0.0010 cubic feet per minute per square foot of internal pipe surface.

Testing with water may be requested by the Contractor. If approved by the City Engineer, the test shall be performed from manhole to manhole by plugging the sewer pipe at the downstream manhole and filling the pipe to a level 5-feet above the top of the pipe at the upper manhole, or 5-feet above the groundwater level, whichever is greater. The rate of leakage shall be determined by measuring the amount of water required to maintain the water level at the upper manhole. The test shall be conducted for a period of at least two hours. The City Engineer may, at his discretion, require a longer test period. Leakage shall not be in excess of the rate of 20 gallons per inch of pipe diameter per 1,000 lineal feet of pipe per day.

## **MANHOLES**

Manholes are required:

At changes of slope.

At changes of pipe size.

At changes of direction unless the design, as approved by the City Public Works Department, allows for large radius curves.

Intersections of mains. Maximum spacing of 400 feet.

Ends of lines more than 200 feet in length.

All manholes shall be numbered on the plans.

Precast manhole bases shall have the invert slopes constructed to match the plan grades, without additional drop through the manhole, and shall have "O-Ring" or equivalent joints to the sewer pipe.

Cast-in-place manhole bases shall include waterstops on all plastic pipes cast in the base. The finish of the base shall be smooth, and equivalent to a steel trowel finish.

All manholes shall be tested for leakage by filling with water. Leakage shall not be greater than 0.15 gallons per day per square foot of interior surface area. All visible leaks shall be repaired.

### **SEWER LATERALS**

Pipe Materials:

PVC ABS

Ductile Iron Pipe

Size:

Minimum 4" diameter. Larger diameter laterals may be required by the City Engineer.

Depth:

3' minimum at property line

1' minimum at building service

Slope:

2% preferred, 1% minimum if approved by the City Engineer or Director of Public Works.

Slope designed by Registered Civil Engineer and approved by the City Engineer.

Connections:

All connections shall be made in a method approved and inspected by the City Department of Public Works.

Calder couplings shall not be used, and connections shall be similar and equal to a 12-inch long Romac Style LSS sewer clamp coupling, unless otherwise specifically approved by the

Director of Public Works or the City Engineer.

## **STORM DRAINAGE DETENTION FACILITIES**

### **DESIGN OBJECTIVE**

The peak stormwater discharge flow rate from the gross area of the land development project site, and all tributary public rights-of-way, after full development during a 100-year (1% probability) design storm event of any duration shall not exceed the peak stormwater discharge flow rate from the undeveloped project site and all tributary public rights-of-way, based upon a 100-year (1% probability) design storm event.

Design calculations and drawings shall be prepared by a registered civil engineer to demonstrate that this design objective is fulfilled. Calculations and drawings shall be site-specific for the proposed land development site, and shall be based upon actual construction conditions. (The improvements to be constructed must be hydraulically consistent with the design assumptions presented in the calculations.)

The property owner shall have the design engineer inspect the construction of the storm drainage detention facilities, and the engineer shall provide the City with reproducible "As-Built" plans for the improvements, together with his or her certification that the improvements were constructed in accordance with the approved design and that the completed facility will operate and function in accordance with the engineer's design. The required certification must be approved by the City Engineer and/ or the City Building Official.

### **DESIGN STORM PARAMETERS**

The 100-year (1% probability) design storm events for the development site shall be based upon the rainfall intensity-duration data presented in the Gridley Public Works Construction Standards. The storm drainage detention facility shall have adequate storage capacity for a 100-year (1% probability) design storm event of any duration (not just for the time of concentration for the site) with adequate freeboard, subject to the approval of the City Engineer.

### **DESIGN TIME OF CONCENTRATION**

For the undeveloped site, the overland flow portion of the time of concentration shall be determined with the following overland flow equation (Caltrans Design Manual):

$$t_o = \frac{1.80 (1.10 - C) (L^{0.50})}{S^{0.333}}$$

Where:  $t_o$  = Overland flow travel time in minutes.  
 C = Runoff coefficient used in the Rational Formula.  
 L = Length of overland flow path in feet.  
 S = Slope of overland flow path in percent.

For the developed site, the time of concentration shall be a combination of overland flow time, as determined by the above equation, and the flow time in gutters and/or pipes to the point being evaluated. However, the time of concentration need not be less than 10 minutes.

### DESIGN RUNOFF COEFFICIENTS

Design runoff coefficients for use in the Rational Formula shall be 11 weighted average 11 values for different surface permeabilities, using values compatible with the following representative values:

Agricultural	0.25
Land Landscaped Areas	0.30
Gravel Walks or Driveways (loose)	0.40
Compacted Aggregate Base	0.80
Asphalt or Concrete Surfaces	0.90
Roof Areas	0.95

Runoff rates used to determine storm runoff detention volumes shall include flows from public areas, including streets, sidewalks, driveways and landscape areas, as well as private areas including buildings, porches, patios, walkways, driveways and landscape areas.

### DETENTION FACILITIES OUTFLOW RATES

The outflow rate used to design the detention facility shall be the rate actually flowing from the facility under design conditions. The maximum allowable discharge rate shall only be used when the design calculations demonstrate that this flow rate will be achieved by the facility as constructed.

**NOTE: Many computer programs used to calculate required detention volumes assume uniform outflow at the maximum allowable rate. If used, this assumption must be confirmed by the design calculations for the proposed physical construction.**

Adequate provisions shall be included in the detention facilities design to accommodate overflows of the detention facilities from storms of greater intensity than the design storm, or for

malfunction of the detention facilities, and for discharge of the water without damaging structures or property.

### **DETENTION "BASIN" DESIGN FEATURES**

Surface impoundments used for storm water detention and/or storage shall have adequate security fencing to control access, while providing adequate clearance for maintenance.

Side slopes of impoundments shall not exceed 2: 1, or the maximum slope recommended by a site-specific soils report, whichever is flatter. Adequate erosion control materials shall be provided to ensure the stability of the banks.

Surface impoundments with a least dimension of the top width greater than twenty feet, as well as impoundments which do not have adequate clearance on the tops of the banks for maintenance equipment, shall include ramps to facilitate equipment access to the bottom of the basin for maintenance.

The basin and all appurtenances shall be designed to minimize standing water which may promote mosquito breeding.

### **ASSURANCE OF LONG-TERM OPERATION**

All storm drainage detention facilities shall be constructed to ensure reliable long-term operation. Facilities serving more than one parcel of land shall be located on easements or rights-of-way dedicated to a public agency. Provision shall be made for the assessment of operation and maintenance fees to the parcels served by the facility to pay the full cost of operating and maintaining the detention facilities. (The estimated cost shall be approved by the City Engineer, and the maximum allowable fee or assessment must be sufficient for public agency operation and maintenance of the facilities in case of default by the designated maintenance authority.) If it is necessary to form a special assessment district to facilitate collection of operation and maintenance costs, the property owner and/or the subdivider proposing the special assessment district will be responsible for formation of the district.

Facilities serving one parcel only shall be located on a public easement or right-of-way, or the property owner shall enter into an agreement with the City (acceptable to the City Attorney) that requires the property owner to maintain the detention facilities in perpetuity. Said agreement shall be recorded, and shall run with the land.

### **MODIFICATION OF EXISTING DETENTION FACILITIES**

The alteration or modification of an existing storm drainage detention facility shall be subject to

the same design requirements as for construction of a new facility.

### **EXCEPTIONS FROM THESE STORM DRAINAGE DETENTION REQUIREMENTS**

Only the following development situations will be exempt from full compliance with the storm drainage detention requirements of the Gridley Public Works Construction Standards.

- A. Parcels tributary to existing storm drainage detention facilities, when the proposed project or improvement is consistent with the design parameters used for the design of the detention facilities.
- B. Parcels tributary to existing City storm drainage facilities which provide flow restriction and/or detention within the City, and the proposed project or improvement will not increase the peak rate of flow discharged from the City storm drainage system, if approved by the City Engineer.
- C. Residentially zoned parcels
  - 1. Existing undeveloped residential parcels which were legally created before 1990.
  - 2. Existing developed residential parcels when the proposed improvements will not cumulatively increase the structural coverage by more than 500 square feet from the structural coverage which existed on January 1, 2000.
- D. Commercial or Industrially zoned parcels
  - 1. Alteration, modification, improvement or change that will not increase the computed composite "C" value (runoff coefficient) by more than 5% from the computed composite "C" value for the conditions that existed on the site on January 1, 2000.

### **STORM DRAIN DESIGN CRITERIA**

#### **GENERAL**

All drainage design requirements shall be in accordance with the latest Master Drainage Plan for the City of Gridley.

Design calculations and flow maps for all tributary areas shall be submitted in duplicate with improvement plans.

Topographic maps shall have adequate ground elevations and/or contours (maximum interval - 1 foot), adequate to define boundaries and slope of drainage basin.

Each drainage basin to be identified and correlated to calculations for that basin. All data and calculations shall be complete and shall have reasonable clarity.

Diversions of all types shall be in strict accordance with applicable laws.

Placement of fills of any magnitude across an existing drainage course shall incorporate a means by which excess flows not handled by the design drainage system can flow overland via essentially the same course as prior to placing the fill across the drainage course without inundating or damaging any structure.

The following storm drain design criteria and charts shall be used with the rational formula for calculating hydrologic and pipe and/or channel design characteristics, i.e., size, type, slope, velocities and entrance, and outlet structures, etc.

The use of onsite and offsite underground storm drain systems, in addition to standard curb and gutters, shall be required:

To limit inlet spacing to 500 feet maximum. To eliminate valley gutters.

To eliminate a concentrated discharge of drainage into the street.

When the flow of water in the gutter, caused by storm water based on a 10-year storm design criteria, would extend more than eight feet from the face of curb or overtop the curb.

The type of drainage facility shall be selected on the basis of the Master Storm Drainage Plan criteria.

The use of valley gutters on collector streets and arterial streets is not acceptable.

Concentrated drainage shall not be discharged to City Streets unless specifically approved by the City Department of Public Works.

## **DESIGN CRITERIA**

Building pads shall not be inundated during a 100-year frequency storm. Traffic lanes shall not be inundated during a design frequency storm.

All existing streets shall be assumed to be constructed to ultimate standards.

All major drainage channels and natural streams shall be assumed to be constructed to ultimate standards.

Culverts shall be analyzed using a ponded (no velocity) condition upstream unless a definite channel exists or is proposed upstream. Inlet and outlet transition structures shall be provided to minimize entrance and exit losses.

Minimum size of proposed culverts shall be 12-inches in diameter.

Level of development as shown in the current City of Gridley General Plan. Recurrence Interval (Storm Frequency):

1. A frequency of ten years for areas less than forty acres and where the proposed drainage structure will not be placed in a natural or constructed sump. Culverts under moderate fill to pass a ten-year storm without static head, and under high fills to pass a 25-year storm with head; however, no damage due to ponding is to occur.
2. A 25-year frequency for areas larger than 40 acres and less than 160 acres. Culverts under moderate fills on collector and local streets are to pass a 25-year storm without static head, and under high fills to pass a 100-year storm with head; however, no damage due to ponding is to occur.
3. A 100-year frequency for areas larger than 160 acres, or where culverts are to be placed under high fills; where a sump condition exists and damage would result due to ponding and where major streets or a freeway are to be crossed. Culverts to pass 100-year storm with head; however, no damage due to ponding is to occur.

**SUMMARY OF STORM FREQUENCY**

<b>Drainage Area (Acres)</b>	<b>Design Frequency</b>	<b>Culverts under moderate fills without head</b>	<b>Culverts under high fills with head</b>
0-40	10 yr.	10 yr.	25 yr.
40-160	25 yr.	25 yr.	100yr.
> 160	100yr.*	100 yr.	100 yr.

\* All major streets or freeways, 100 years with head.

The minimum time of concentration shall be 10 minutes.

Vertical Alignment: Match soffits of different sized pipe (not flow lines). Minimum pipe size is 12" diameter if the City has to maintain.

Drop Inlets: Drop inlets shall be placed at return points upstream from the intersection whenever possible. Maximum spacing of drop inlets or manholes shall be 500 feet.

## **PIPE MATERIALS**

The material for storm drain pipes shall be:

1. Solid-wall PVC pipe with rubber gasket joints, conforming to ASTM D3034 with a minimum SDR of 35.
2. Reinforced concrete pipe with rubber gasket joints, conforming to ASTM C76, Class 3 minimum.
3. High Density Polyethylene Pipe (HDPE), watertight with rubber gasket bell and spigot joints, conforming to AASHTO M294 Type S or AASHTO MP7 with joints conforming to ASTM D3212, and gaskets conforming to ASTM F477. The minimum cover for HDPE pipe shall be one foot to street subgrade.
4. Cast-in-place concrete pipe designed in conformance with the City of Gridley Master Storm Drainage Plan Design Criteria.

The use of cast-in-place concrete pipe shall be subject to the specific approval of the City Engineer, subject to the minimum cover criteria shown below.

## **GRADE**

Storm drain pipelines shall be accurately constructed to the design lines and grades. The extremely flat grades necessary in the City of Gridley require particularly careful construction to maintain invert grades within  $\pm 0.02$  feet vertically and  $\pm 0.05$  feet horizontally.

All storm drains should be designed for a minimum velocity of 2 feet per second, flowing full.

Precast pipes 24" or larger in diameter may be laid on a horizontal curve. The radius of curve shall not be less than 300' unless special pipes with longer lips are used.

D-Load criteria shall be used to design all pipes.

Precast R. C.P. is required in all roadway areas unless top of pipe is more than 36" below subgrade.

For non-traffic areas (front yard, back yard, etc.) non-reinforced concrete pipe may be allowed.

Poured-in-place pipe cover requirements:

Depth from subgrade to top of pipe (Roadway Area)	Cover
0 - 12"	Not allowed.
12 - 36"	6" reinforced slab with 4" sand over pipe.
36" or more	No special requirement.

Poured-in-place concrete pipe may be laid on a curve as follows:

Pipe I.D. (inches)	Minimum Radius (feet)
24"	50'
30"	50'
36"	50'
42"	65'
48"	80'
54"	100'
60"	120'
72"	130'

### VALLEY GUTTERS

Minimum slope across the valley gutter shall be 0.50 % , and grade breaks will not be allowed. A minimum of three elevations will be required.

The difference in elevation between the top of the curb at the midpoint of the return and the flowline of valley gutter at the elephant ear shall not to exceed 1.0 foot.

Do not use a valley gutter if there is a storm drain to which water could be dropped in from above. The gutter is to carry water tributary from not more than 500' of street (or one block) whichever is shorter.

### EXISTING IRRIGATION AND DRAINAGE CHANNELS

Existing drainage ditches and channels belonging to the Reclamation Districts and Drainage Districts adjoining the City shall be improved, graded and/or enlarged as necessary to carry the design flows listed in the City of Gridley Master Drainage Plan at the design grade of the channel.

Headwalls and wingwalls shall be provided at each end of pipes or box culverts to minimize entrance and exit losses, and cleanout access structures shall be provided at intervals of 1,000 feet maximum.

The subdivider and/or contractor shall make all necessary downstream drainage improvements in accordance with the Master Drainage Plan sufficient to carry the design flow for a 100-year frequency storm as shown in the Plan without inundating the building pads within the subdivision. Complete, detailed hydraulic calculations prepared by a registered civil engineer shall be submitted to demonstrate compliance with this requirement, and shall be subject to the approval of the City Engineer.

Roadway crossings of existing ditches shall be a reinforced concrete pipe, box culvert, or slab bridge with headwalls and wingwalls, sized to carry the design flow of the ditch, at the design grade of the ditch. All crossings shall be subject to the approval of the City Engineer.

**GRIDLEY RAINFALL INTENSITIES**

<b>Tc MINS.</b>	<b>1(5) INS./HR.</b>	<b>1(10) INS./HR.</b>	<b>1(25) INS./HR.</b>	<b>1(50) INS./HR.</b>	<b>1(100) INS./HR.</b>	<b>Tc MINS.</b>
10	1.48	1.75	2.16	2.29	2.53	10
11	1.41	1.67	2.06	2.18	2.41	11
12	1.35	1.59	1.97	2.08	2.31	12
13	1.29	1.53	1.89	2.00	2.22	13
14	1.24	1.47	1.82	1.93	2.13	14
15	1.20	1.42	1.76	1.86	2.06	15
16	1.16	1.37	1.70	1.80	1.99	16
17	1.12	1.33	1.65	1.74	1.93	17
18	1.09	1.29	1.60	1.69	1.88	18
19	1.06	1.25	1.56	1.65	1.83	19
20	1.03	1.22	1.52	1.61	1.78	20
21	1.01	1.19	1.48	1.57	1.74	21
22	0.98	1.16	1.45	1.53	1.70	22
23	0.96	1.14	1.41	1.50	1.66	23
24	0.94	1.11	1.38	1.46	1.62	24
25	0.92	1.09	1.36	1.43	1.59	25
26	0.90	1.07	1.33	1.40	1.56	26
27	0.88	1.05	1.30	1.38	1.53	27
28	0.87	1.03	1.28	1.35	1.50	28
29	0.85	1.01	1.26	1.33	1.47	29
30	0.84	0.99	1.24	1.31	1.45	30
31	0.82	0.97	1.21	1.28	1.42	31
32	0.81	0.96	1.20	1.26	1.40	32
33	0.80	0.94	1.18	1.24	1.38	33
34	0.78	0.93	1.16	1.23	1.36	34
35	0.77	0.91	1.14	1.21	1.34	35
36	0.76	0.90	1.13	1.19	1.32	36
37	0.75	0.89	1.11	1.17	1.30	37
38	0.74	0.87	1.09	1.16	1.28	38
39	0.73	0.86	1.08	1.14	1.27	39
40	0.72	0.85	1.07	1.13	1.25	40
41	0.71	0.84	1.05	1.11	1.23	41

<b>Tc MINS.</b>	<b>1(5) INS./HR.</b>	<b>1(10) INS./HR.</b>	<b>1(25) INS./HR.</b>	<b>1(50) INS./HR.</b>	<b>1(100) INS./HR.</b>	<b>Tc MINS.</b>
42	0.70	0.83	1.04	1.10	1.22	42
43	0.69	0.82	1.03	1.09	1.20	43
44	0.68	0.81	1.02	1.07	1.19	44
45	0.68	0.80	1.00	1.06	1.18	45
46	0.67	0.79	0.99	1.05	1.16	46
47	0.66	0.78	0.98	1.04	1.15	47
48	0.65	0.77	0.97	1.03	1.14	48
49	0.65	0.77	0.96	1.02	1.13	49
50	0.64	0.76	0.95	1.01	1.12	50
51	0.63	0.75	0.94	1.00	1.10	51
52	0.63	0.74	0.93	0.99	1.09	52
53	0.62	0.74	0.92	0.98	1.08	53
54	0.62	0.73	0.92	0.97	1.07	54
55	0.61	0.72	0.91	0.96	1.06	55
56	0.60	0.72	0.90	0.95	1.05	56
57	0.60	0.71	0.89	0.94	1.04	57
58	0.59	0.70	0.88	0.93	1.03	58
59	0.59	0.70	0.87	0.92	1.02	59

<b>Tc HRS.</b>	<b>1(5) INS./HR.</b>	<b>1(10) INS./HR.</b>	<b>1(25) INS./HR.</b>	<b>1(50) INS./HR.</b>	<b>1(100) INS./HR.</b>	<b>Tc HRS.</b>
1	0.58	0.69	0.87	0.92	1.02	1
2	0.41	0.48	0.61	0.64	0.71	2
3	0.33	0.39	0.50	0.52	0.58	3
4	0.28	0.34	0.43	0.45	0.50	4
5	0.25	0.30	0.38	0.40	0.45	5
6	0.23	0.27	0.35	0.37	0.41	6
7	0.21	0.25	0.32	0.34	0.38	7
8	0.20	0.23	0.30	0.32	0.35	8
9	0.19	0.22	0.28	0.30	0.33	9
10	0.18	0.21	0.27	0.28	0.31	10
11	0.17	0.20	0.26	0.27	0.30	11
12	0.16	0.19	0.24	0.26	0.29	12
13	0.15	0.18	0.23	0.25	0.27	13
14	0.15	0.17	0.23	0.24	0.26	14
15	0.14	0.17	0.22	0.23	0.26	15
16	0.14	0.16	0.21	0.22	0.25	16
17	0.13	0.16	0.20	0.22	0.24	17
18	0.13	0.15	0.20	0.21	0.23	18
19	0.13	0.15	0.19	0.20	0.23	19
20	0.12	0.15	0.19	0.20	0.22	20
21	0.12	0.14	0.18	0.19	0.22	21
22	0.12	0.14	0.18	0.19	0.21	22
23	0.11	0.14	0.18	0.19	0.21	23
24	0.11	0.13	0.17	0.18	0.20	24

### RAINFALL INTENSITY EQUATIONS

$$I(5) = 4.9 \times T_c^{-0.52}$$

$$I(10) = 5.8 \times T_c^{-0.6}$$

$$I(25) = 7.0 \times T_c^{-0.5}$$

$$I(50) = 7.4 \times T_c^{-0.5}$$

$$I(100) = 8.2 \times T_c^{-0.5}$$

\*\*\*\*\*

Tc in Minutes

I in Inches/Hour

## **ELECTRIC DISTRIBUTION FACILITIES**

**STANDARDS:** All electric distribution equipment to be connected to the Gridley electric distribution system shall conform to the requirements of the National Electric Code (NEC) and General Order No. 95 of the California Public Utilities Commission.

## **EXTENSIONS OF CITY FACILITIES**

**GENERAL POLICY:** The City of Gridley will extend its electrical system along public roads, streets, and upon private property across, under and in satisfactory easements or rights-of-way that have been dedicated.

System expansion within the boundaries of a subdivision or other development to be served:

**CONSTRUCTION BY THE APPLICANT:** The applicant shall provide, at no cost to the City, and in accordance with City standards and specifications, all engineering, trenching, backfill, resurfacing, landscaping, conduit, secondary conductors, junction boxes, vaults, equipment pads and subsurface housings required for power distribution within the development. Upon acceptance by the City, the applicant will transfer ownership to the City.

**CONSTRUCTION BY THE CITY:** After acceptance of the facilities provided by the applicant, the City will furnish and install all transformers, primary conductors, switches, and other equipment required for the system's extension, and the cost thereof will be charged to the applicant.

**CONSTRUCTION CHARGES:** Charges will be as set forth by resolution of the City Council. Credit will be given for oversizing of facilities to provide for areas beyond the boundary of the development, computed on the basis of the City's costs for materials.

System extension or reinforcement outside the boundaries of a subdivision or other development to be served:

**CONSTRUCTION BY CITY:** The City will construct the necessary underground facilities to deliver electric power to the development site. Connection to these facilities will be subject to charges in accordance with fees established by resolution of the City Council, entitled "Utility Connection Charges."

**CONSTRUCTION BY APPLICANT:** Where mutually agreed, all or part of the required system extension may be constructed by the applicant in accordance with the Gridley Public Works Construction Standards.



## **ELECTRIC DISTRIBUTION FACILITIES**

### **ECONOMIC JUSTIFICATION OF CONSTRUCTION**

A system extension or reinforcement required by a subdivision or other development outside the present electric service area will be considered economically justified if the City 's expense and investment in the construction is not greater than 2.0 times the expected gross annual revenue from the subdivision or other development.

If the City Engineer determines that the requested extension is not justified economically, the applicant shall pay as a connection charge, in addition to all other applicable charges, the amount required to reduce the City ' s investment in the construction to 2.0 times the expected annual gross revenue.

The City Engineer ' s decision, after consideration of all available facts, will be final.

Extension of the electric distribution system to serve subdivisions or developments will be subject to budgetary considerations and approval by the City Council for any expenditure of City funds not specifically budgeted for.

## **ELECTRIC SERVICE STANDARDS**

### **SERVICE CONNECTIONS**

Only duly authorized employees of the City shall connect or disconnect the customer 's service to the City' s distribution system.

### **ELECTRIC UTILITY SERVICES**

It is the policy of the City of Gridley that all new electrical utility services shall be provided by underground facilities on the customer 's premises. On-site electrical line shall be provided at the customer 's expense and shall meet the City 's specifications. Overhead service will be permitted only when underground construction, in the opinion of the City Engineer, is not feasible.

### **NUMBER OF SERVICES**

Only one service drop or lateral may be extended to a building or other premises to be served, except:

Two or more service laterals may be extended to a single building or premise, provided they enter the building or other structures at points at least 150-feet apart and that all wiring, other than control or metering conductors, supplied by each service is separate from and entirely independent of wiring supplied by any other source.

Two or more sets of service entrance conductors may be extended to a single switch panel for the purpose of providing additional capacity or backup protection.

### **NUMBER OF SERVICE WEATHERHEADS PER SERVICE DROP**

Not more than two service weatherheads may be serviced from a single overhead service drop.

## **ELECTRIC DISTRIBUTION FACILITIES**

### **NONSTANDARD OR EXCESSIVE CUSTOMER REQUIREMENTS:**

If the customer requires nonstandard voltages or excess load and/or transformer capacity because of comparatively large loads of short duration, unusually close voltage regulation, or separate transformers to serve low-revenue loads, the customer shall pay the City the difference in cost of the installation requested by the customer and the City 's standard installation.

### **PHASE BALANCING**

When three-wire, single-phase or three-phase service is supplied, the load must be balanced as nearly as practicable between the two sides or several phases. In no case shall the load on one side be twice as great as the other side.

### **POWER-FACTOR CORRECTION**

In the case of devices having low power factors, the customer shall provide, at his own expense, power-factor corrective equipment to increase the power-factor of any device to not less than 90 percent.

### **REDUCED-VOLTAGE STARTING**

All electric motors larger than 50 HP shall have reduced- voltage starting equipment unless this requirement is specifically waived by the Gridley Electric Department.

### **ELECTRIC METER LOCATION**

All electric meters shall be installed in a location with convenient access for the Gridley Electric Department for reading, inspecting, and testing the meters. All proposed meter locations which are enclosed or restricted must be approved in advance by the Gridley Electric Department.

## **CUSTOMER ORDER PROCEDURE**

### **ORDERING NEW OR ADDITIONAL SERVICE**

#### **LARGE SERVICE REQUESTS**

Requests for service to loads of 500 KVA or greater maximum demand must be approved in advance by the Gridley Electric Department.

#### **ALL SERVICE REQUESTS**

Submit two copies of the project plot plan with definite load information for commercial and industrial installations. Furnish this information as soon as possible.

## **ELECTRIC DISTRIBUTION FACILITIES**

Submit two copies of load information with building plans submitted to the Department of Public Works.

Point of service will be as determined by the Gridley Electric Department.

All required fees and charges must be paid prior to connection of service or issuance of building permit.

All electrical work on the customer side of the meter must be inspected before it will be energized. Call 846-3631 for an inspection.

Application for service is to be made at the Public Works Office in City Hall, 685 Kentucky Street.

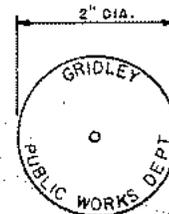
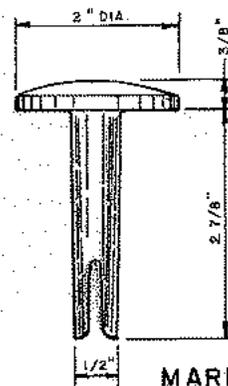
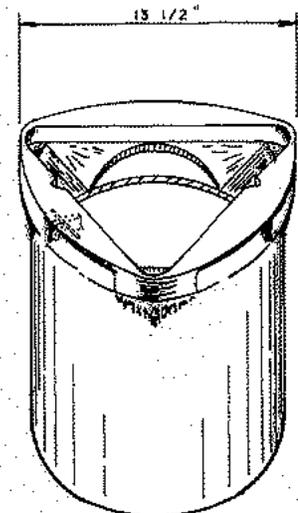
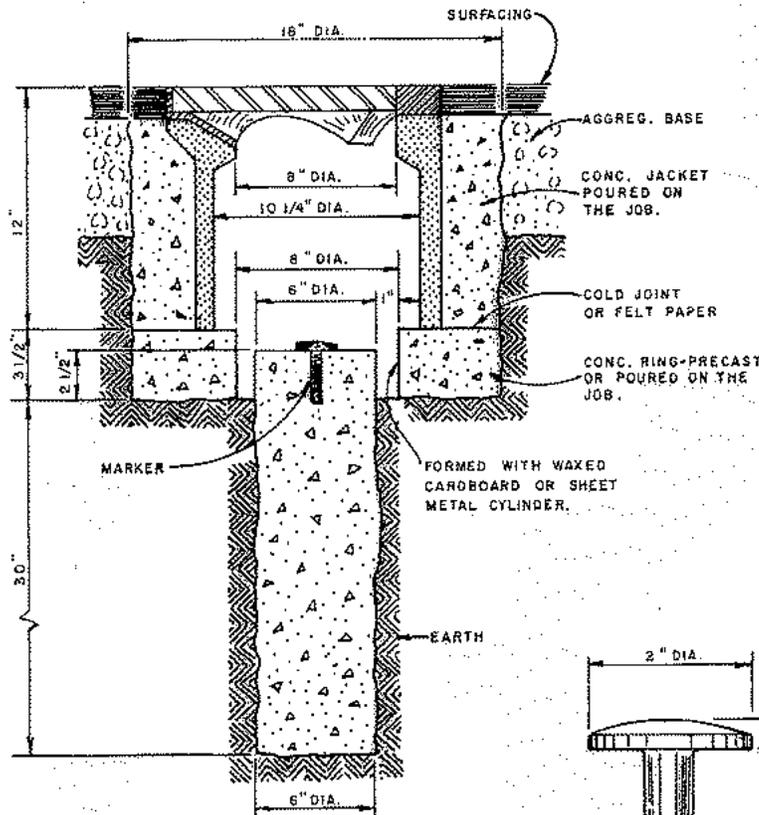
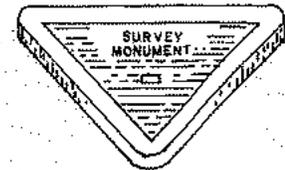
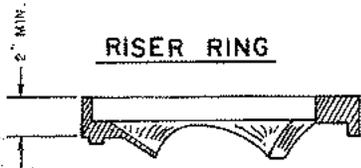
### **ORDERING TEMPORARY SERVICE**

If temporary service is needed at a construction site, the following procedures should be followed:

1. Contact the Public Works Department at 846-3631. After a field check, the temporary service point will be located and a cost estimate prepared.
2. Customer must sign a "Customer Job Request Form" to authorize customer billing for up and down charges or other costs necessary to provide temporary service.
3. Application for temporary service is to be made at the Public Works Office.
4. Customer shall furnish and install all necessary service equipment on a temporary pole. The installation shall be inspected before connection is made. Call 846-3631 for inspection.
5. If service is overhead, the City will install a service drop to the temporary pole.
6. The customer will be billed actual up and down costs or any temporary installation to the City's distribution system that were required to provide the service.



NOTE:  
WHEN RESURFACING ROAD  
ADD RISER RING BETWEEN  
EXISTING BOX & COVER  
TO MEET NEW ROAD GRADE.



NOTE:  
MONUMENT TO BE NO. 4TT  
VALVE BOX W/C.I. FACE & COVER  
FOR TRAFFIC USE. BROOKS  
PRODUCTS INC. OR EQUAL.

APPROVED BY CITY COUNCIL  
RESOLUTION NO. 50  
DATE: SEPTEMBER 16, 1991

**PUBLIC WORKS  
STANDARD NO G2**

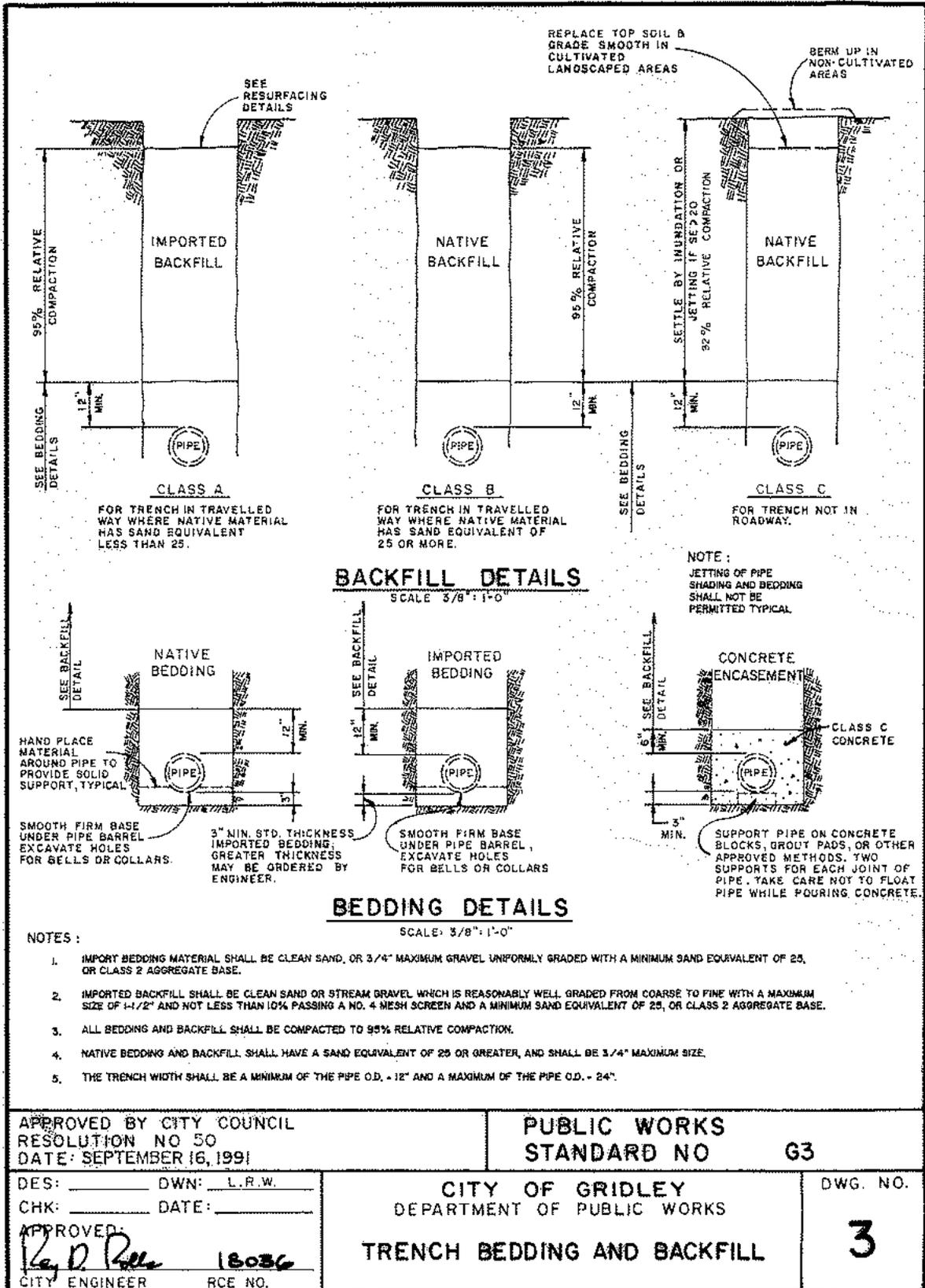
DES: \_\_\_\_\_ DWN: L.R.W.  
CHK: \_\_\_\_\_ DATE: \_\_\_\_\_  
APPROVED:  
*Ray D. Pella* 18036  
CITY ENGINEER RCE NO.

**CITY OF GRIDLEY  
DEPARTMENT OF PUBLIC WORKS**

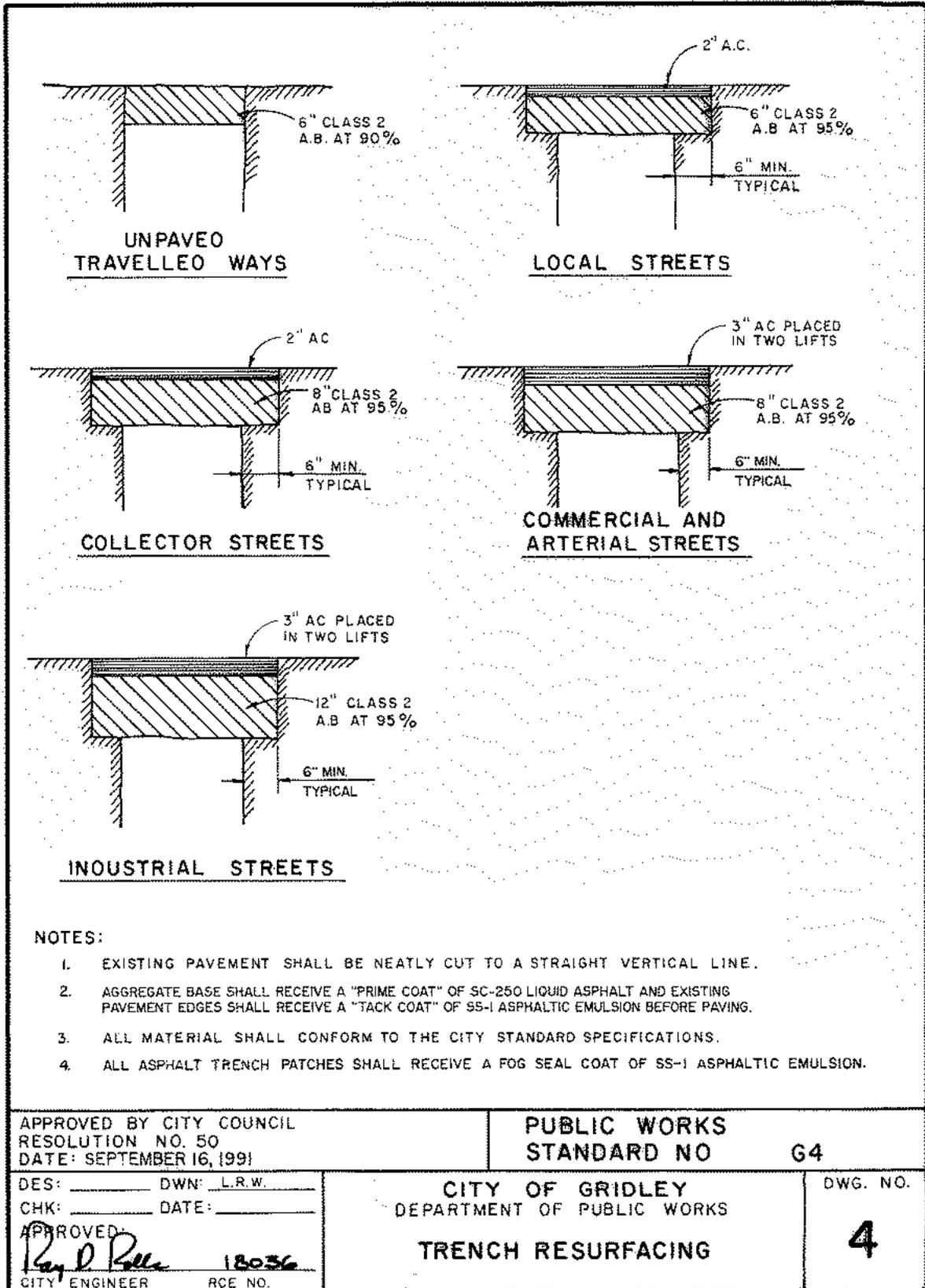
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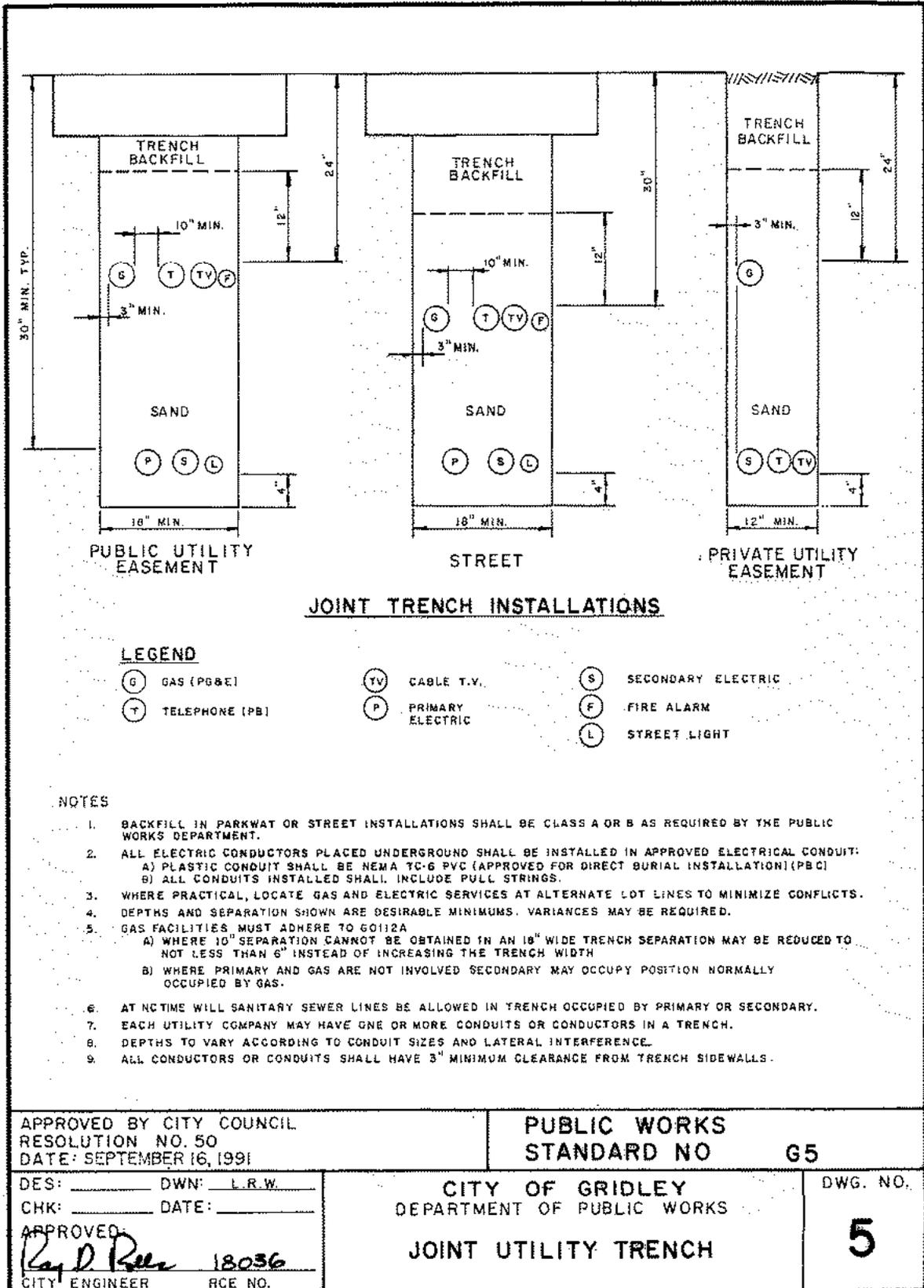
**SURVEY MONUMENT**

**2**



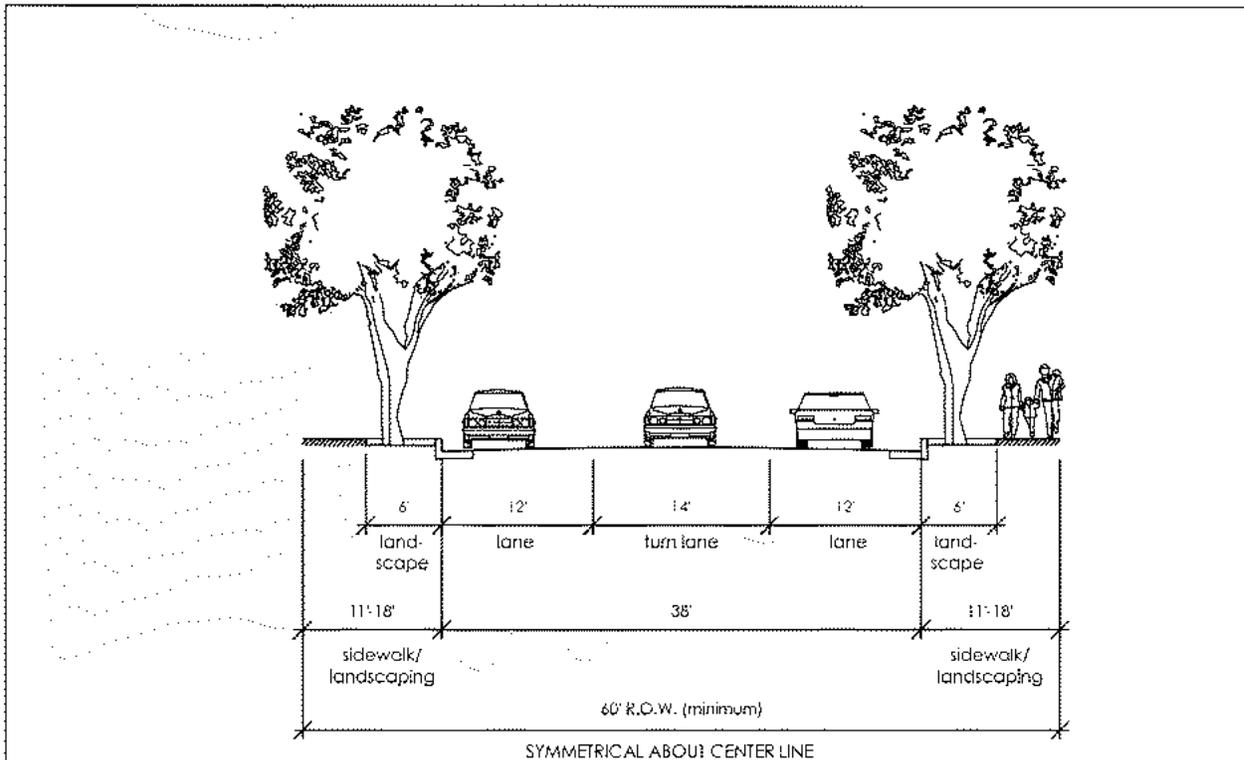
APPROVED BY CITY COUNCIL RESOLUTION NO 50 DATE: SEPTEMBER 16, 1991		PUBLIC WORKS STANDARD NO 63	
DES: _____ DWN: L.R.W.	CITY OF GRIDLEY DEPARTMENT OF PUBLIC WORKS		DWG. NO.
CHK: _____ DATE: _____	TRENCH BEDDING AND BACKFILL		3
APPROVED: <i>[Signature]</i> CITY ENGINEER	RCE NO. 18036		











**DEFINITION**

A STREET THAT SERVES A LARGE VOLUME OF VEHICULAR TRAFFIC WITH INTERSECTIONS AT GRADE AND GENERALLY HAVING LIMITED DIRECT ACCESS TO ABUTTING PROPERTY, AND ON WHICH GEOMETRIC DESIGN AND TRAFFIC CONTROL MEASURES ARE USED TO EXPEDITE THE SAFE MOVEMENT OF THROUGH TRAFFIC.

**ACCESS**

INTERSECTIONS AT GRADE WITH LIMITED DIRECT ACCESS TO ABUTTING PROPERTY.

**TRAFFIC FEATURES**

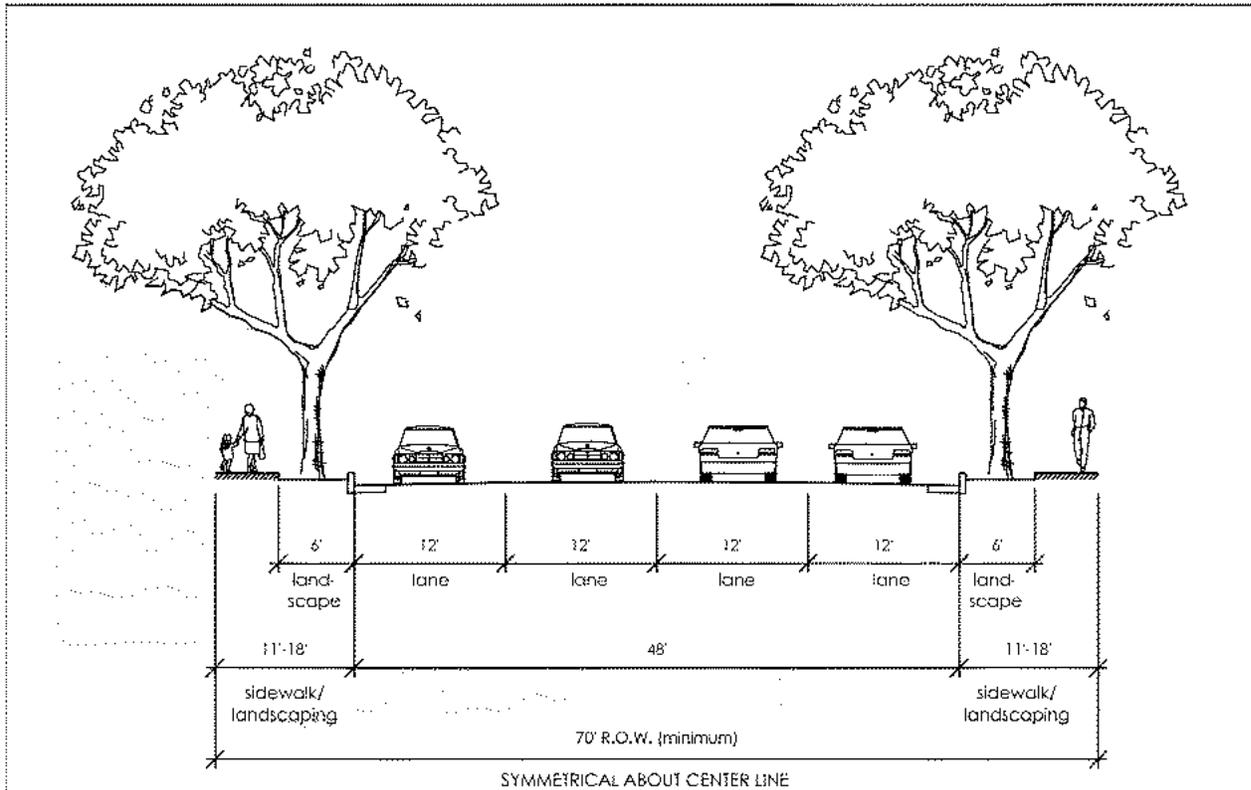
CHANNELIZATION USED TO CONTROL TURNING MOVEMENTS AT INTERSECTIONS AND AT CRITICAL DRIVEWAYS. TRAFFIC SIGNALS AT MAJOR INTERSECTIONS, PARKING, AND DRIVEWAYS RESTRICTED, AS NECESSARY.

**STRUCTURAL DESIGN SECTION  
(MINIMUM)**

AGGREGATE BASE  
PRIME COAT  
ASPHALT CONCRETE  
FOG SEAL

APPROVED BY: RESOLUTION NO. DATE:	PUBLIC WORKS STANDARD NO.	
	<p align="center"><b>CITY OF GRIDLEY</b> DEPARTMENT OF PUBLIC WORKS</p> <p align="center"><b>2-LANE ARTERIAL STREET</b></p>	DWG. NO.  <b>6A</b>





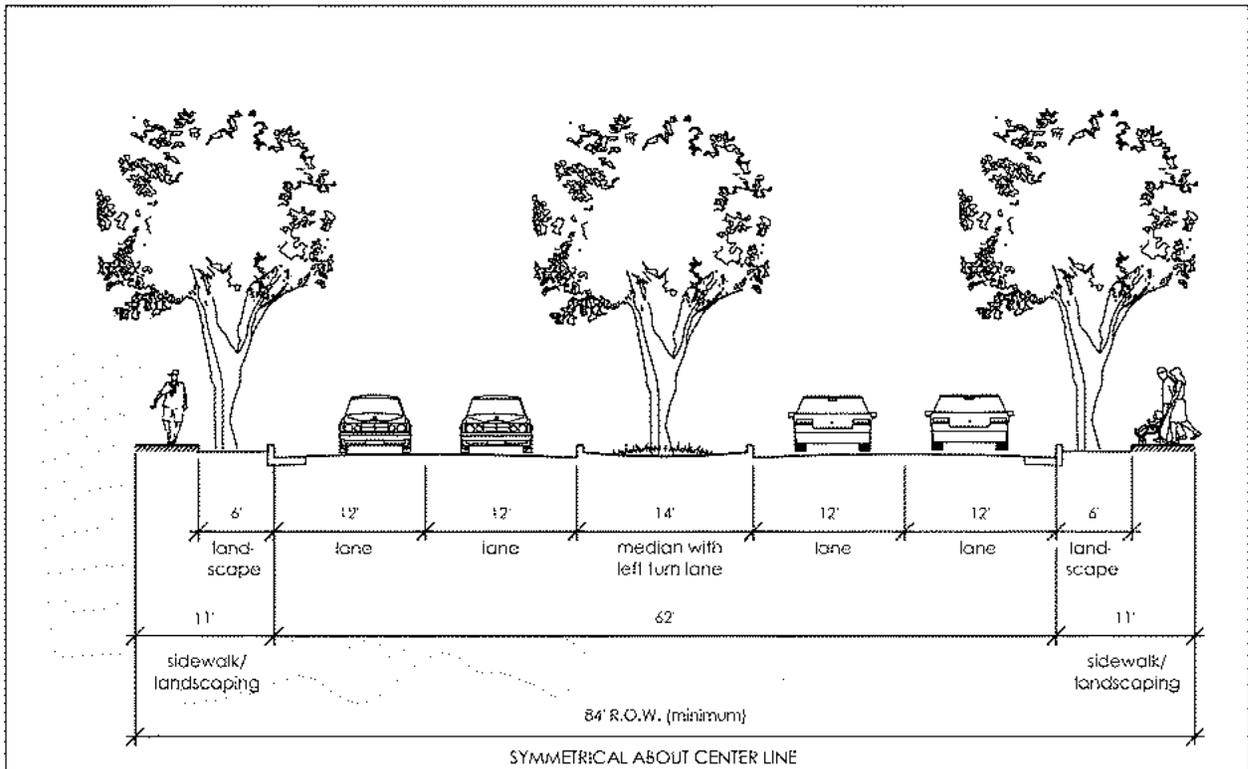
SYMMETRICAL ABOUT CENTER LINE

- DEFINITION** A STREET THAT SERVES A LARGE VOLUME OF VEHICULAR TRAFFIC WITH INTERSECTIONS AT GRADE AND GENERALLY HAVING LIMITED DIRECT ACCESS TO ABUTTING PROPERTY, AND ON WHICH GEOMETRIC DESIGN AND TRAFFIC CONTROL MEASURES ARE USED TO EXPEDITE THE SAFE MOVEMENT OF THROUGH TRAFFIC.
- ACCESS** INTERSECTIONS AT GRADE WITH LIMITED DIRECT ACCESS TO ABUTTING PROPERTY.
- TRAFFIC FEATURES** CHANNELIZATION USED TO CONTROL TURNING MOVEMENTS AT INTERSECTIONS AND AT CRITICAL DRIVEWAYS. TRAFFIC SIGNALS AT MAJOR INTERSECTIONS, PARKING AND DRIVEWAYS RESTRICTED AS NECESSARY.

**STRUCTURAL DESIGN SECTION (MINIMUM)**

- AGGREGATE BASE
- PRIME COAT
- ASPHALT CONCRETE
- FOG SEAL

APPROVED BY: RESOLUTION NO. DATE:	PUBLIC WORKS STANDARD NO.
	<p style="text-align: center;"><b>CITY OF GRIDLEY</b> DEPARTMENT OF PUBLIC WORKS</p> <p style="text-align: center;">4-LANE ARTERIAL STREET (opt 1)</p> <div style="float: right; text-align: right;"> <p>DWG. NO.</p> <p style="font-size: 2em;"><b>6B</b></p> </div>



**DEFINITION** A STREET THAT SERVES A LARGE VOLUME OF VEHICULAR TRAFFIC WITH INTERSECTIONS AT GRADE AND GENERALLY HAVING LIMITED DIRECT ACCESS TO ABUTTING PROPERTY, AND ON WHICH GEOMETRIC DESIGN AND TRAFFIC CONTROL MEASURES ARE USED TO EXPEDITE THE SAFE MOVEMENT OF THROUGH TRAFFIC.

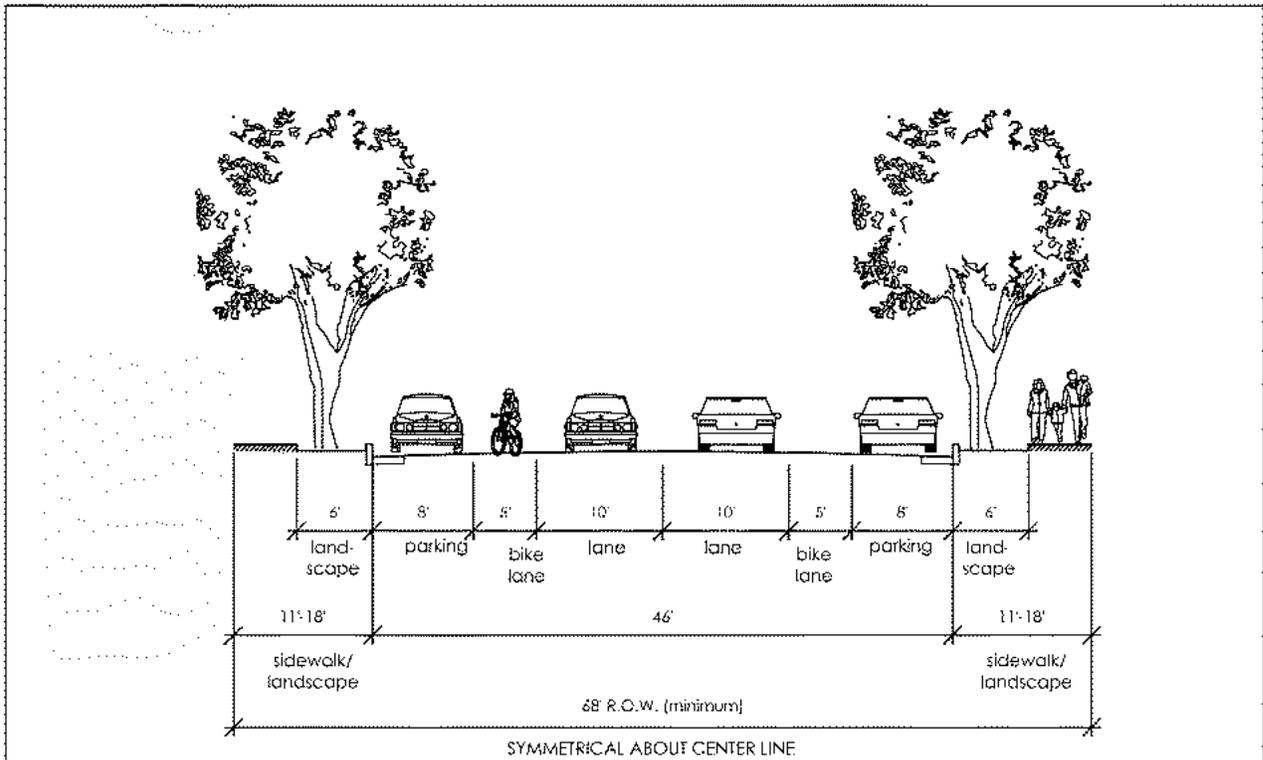
**ACCESS** INTERSECTIONS AT GRADE WITH LIMITED DIRECT ACCESS TO ABUTTING PROPERTY.

**TRAFFIC FEATURES** CHANNELIZATION USED TO CONTROL TURNING MOVEMENTS AT INTERSECTIONS AND AT CRITICAL DRIVEWAYS. TRAFFIC SIGNALS AT MAJOR INTERSECTIONS, PARKING, AND DRIVEWAYS RESTRICTED, AS NECESSARY.

STRUCTURAL DESIGN SECTION  
(MINIMUM)

AGGREGATE BASE  
PRIME COAT  
ASPHALT CONCRETE  
FOG SEAL

APPROVED BY: RESOLUTION NO. DATE:	PUBLIC WORKS STANDARD NO.	
	<b>CITY OF GRIDLEY</b> DEPARTMENT OF PUBLIC WORKS	DWG. NO.  <b>6C</b>
<b>4-LANE ARTERIAL STREET (opt 2)</b>		

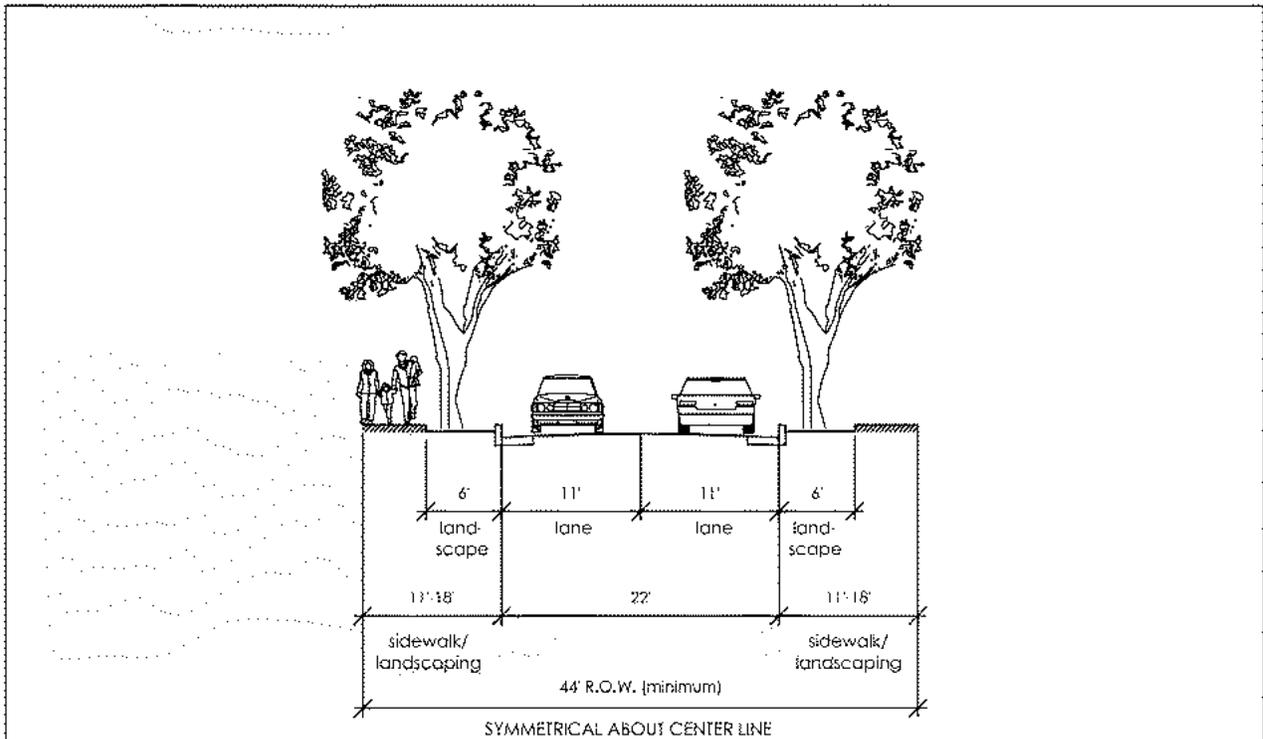


- DEFINITION            A STREET THAT SERVES ABUTTING PROPERTY AND CARRIES TRAFFIC TO THE ARTERIALS.
- ACCESS                INTERSECTIONS AT GRADE WITH DIRECT ACCESS TO ABUTTING PROPERTY.
- TRAFFIC FEATURES    TRAFFIC SIGNALS, PARKING RESTRICTIONS, AND OTHER CONTROL MEASURES, AS WARRANTED.

STRUCTURAL DESIGN SECTION  
{MINIMUM}

AGGREGATE BASE  
PRIME COAT  
ASPHALT CONCRETE  
EOG SEAL

APPROVED BY: RESOLUTION NO. DATE:	PUBLIC WORKS STANDARD NO.	
	<b>CITY OF GRIDLEY</b> DEPARTMENT OF PUBLIC WORKS  <b>MAJOR COLLECTOR STREET (opt 1)</b>	DWG. NO.  <b>7A</b>

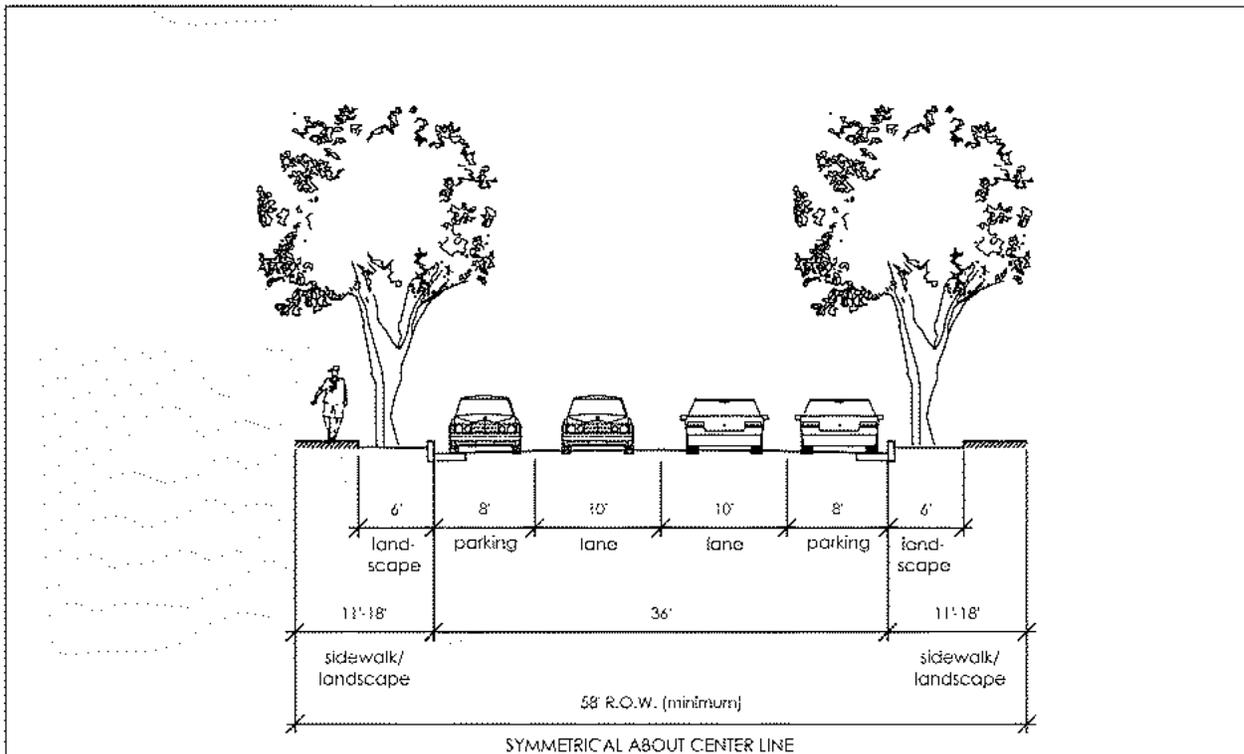


- DEFINITION**            A STREET THAT SERVES ABUTTING PROPERTY AND CARRIES TRAFFIC TO THE ARTERIALS.
- ACCESS**                INTERSECTIONS AT GRADE WITH DIRECT ACCESS TO ABUTTING PROPERTY.
- TRAFFIC FEATURES**    TRAFFIC SIGNALS, PARKING RESTRICTIONS, AND OTHER CONTROL MEASURES, AS WARRANTED.

STRUCTURAL DESIGN SECTION  
{MINIMUM}

AGGREGATE BASE  
PRIME COAT  
ASPHALT CONCRETE  
FOG SEAL

APPROVED BY: RESOLUTION NO. DATE:	PUBLIC WORKS STANDARD NO.	
	<b>CITY OF GRIDLEY</b> DEPARTMENT OF PUBLIC WORKS  <b>MAJOR COLLECTOR STREET (opt 2)</b>	DWG. NO.  <b>7B</b>

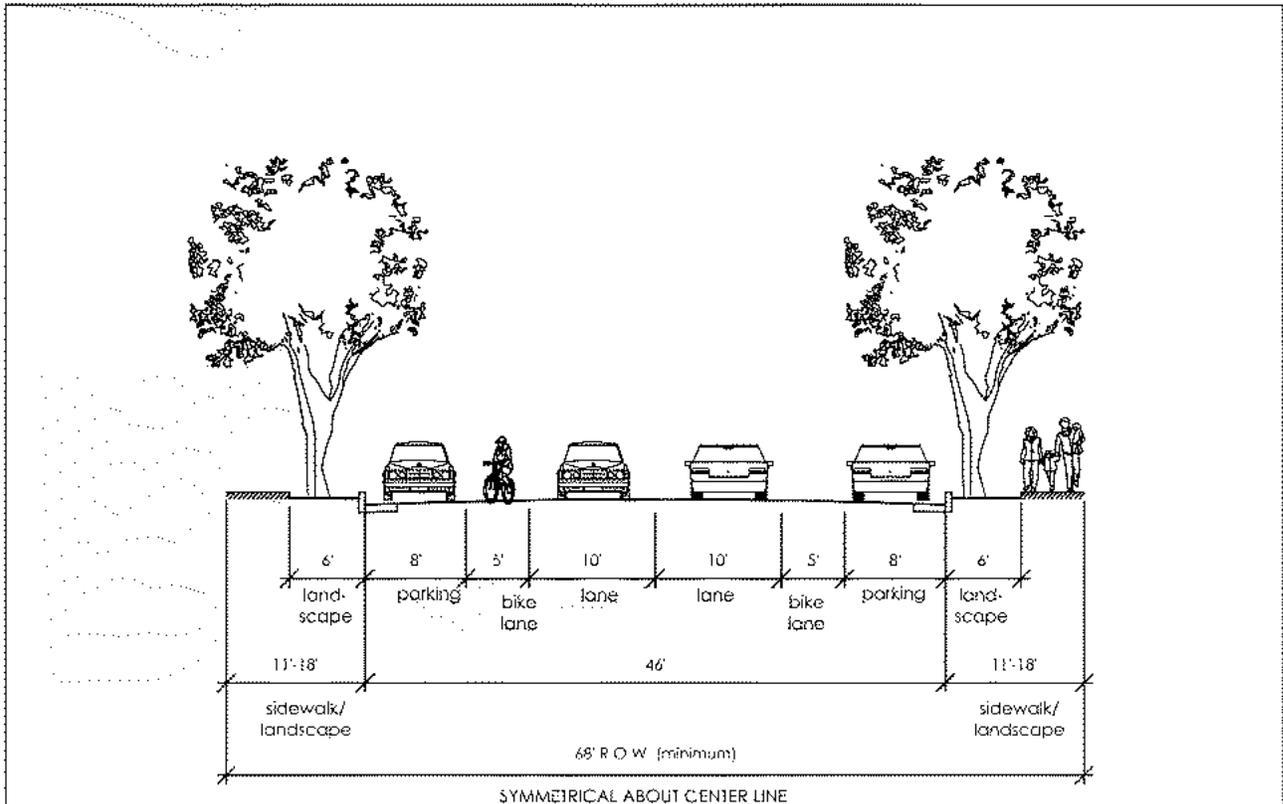


- DEFINITION** A STREET THAT SERVES ABUTTING PROPERTY AND CARRIES TRAFFIC TO THE ARTERIALS.
- ACCESS** INTERSECTIONS AT GRADE WITH DIRECT ACCESS TO ABUTTING PROPERTY.
- TRAFFIC FEATURES** TRAFFIC SIGNALS, PARKING RESTRICTIONS, AND OTHER CONTROL MEASURES, AS WARRANTED.

STRUCTURAL DESIGN SECTION  
{MINIMUM}

AGGREGATE BASE  
PRIME COAT  
ASPHALT CONCRETE  
FOG SEAL

APPROVED BY: RESOLUTION NO. DATE:	PUBLIC WORKS STANDARD NO.	
	<p align="center"><b>CITY OF GRIDLEY</b> DEPARTMENT OF PUBLIC WORKS</p> <p align="center">MINOR COLLECTOR STREET (opt 1)</p>	DWG. NO.  <b>7C</b>

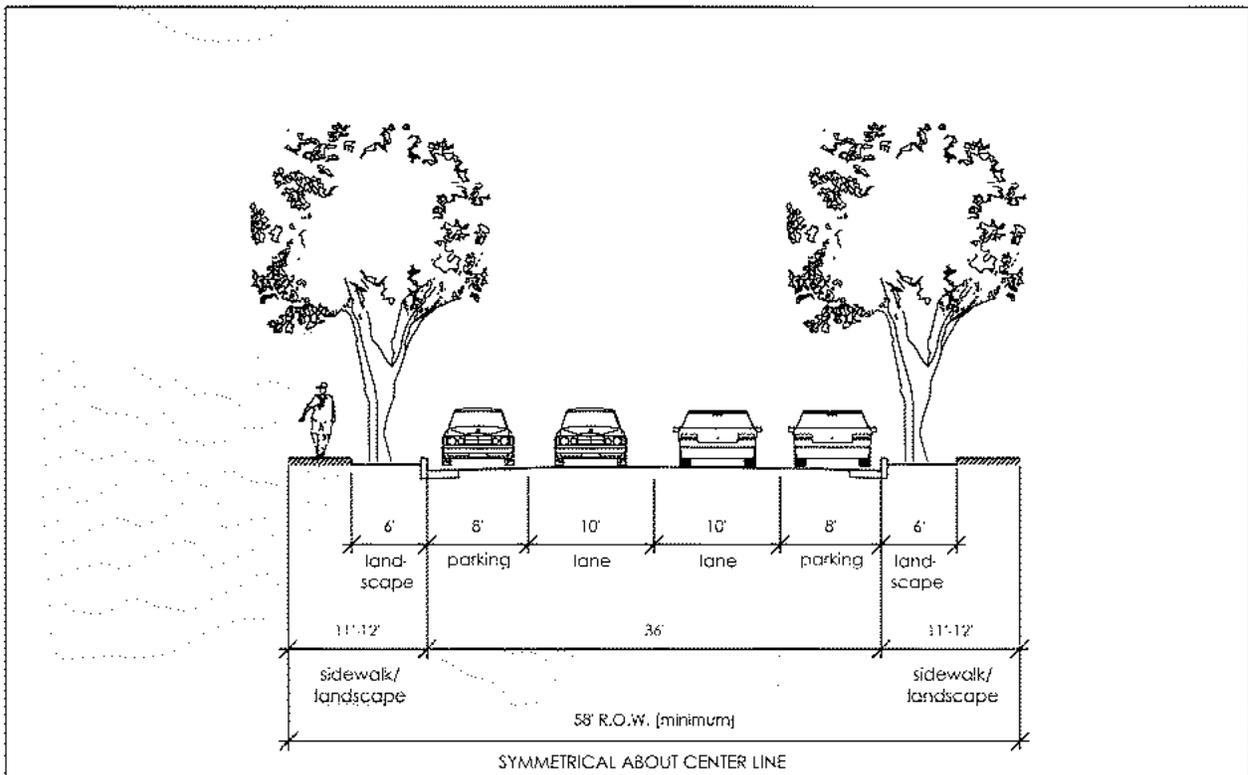


- DEFINITION**            A STREET THAT SERVES ABUTTING PROPERTY AND CARRIES TRAFFIC TO THE ARTERIALS.
- ACCESS**                INTERSECTIONS AT GRADE WITH DIRECT ACCESS TO ABUTTING PROPERTY.
- TRAFFIC FEATURES**    TRAFFIC SIGNALS, PARKING RESTRICTIONS, AND OTHER CONTROL MEASURE, AS WARRANTED.

STRUCTURAL DESIGN SECTION  
{MINIMUM}

AGGREGATE BASE  
PRIME COAT  
ASPHALT CONCRETE  
FOG SEAL

APPROVED BY: RESOLUTION NO. DATE:	PUBLIC WORKS STANDARD NO.	
	<b>CITY OF GRIDLEY</b> DEPARTMENT OF PUBLIC WORKS	DWG. NO.  <b>7D</b>
<b>MINOR COLLECTOR STREET (opt 2)</b>		

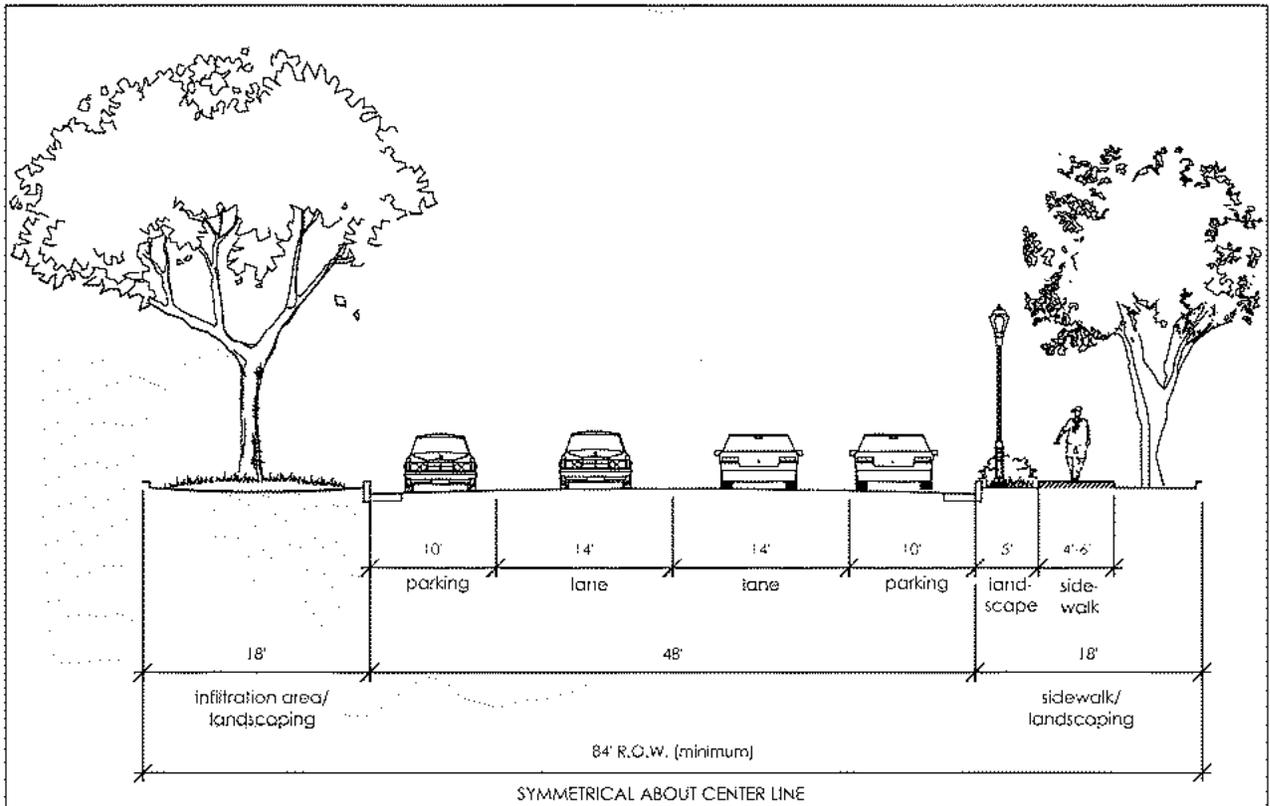


- DEFINITION** A STREET WITH LOW TRAFFIC VOLUMES AND SPEEDS THAT SERVES ADJUTING PROPERTY.
- ACCESS** INTERSECTIONS AT GRADE WITH DIRECT ACCESS TO ADJUTING PROPERTY.
- TRAFFIC FEATURES** TRAFFIC SIGNALS, PARKING RESTRICTIONS, AND OTHER CONTROL MEASURES, AS WARRANTED.

STRUCTURAL DESIGN SECTION  
{MINIMUM}

AGGREGATE BASE  
PRIME COAT  
ASPHALT CONCRETE  
FOG SEAL

APPROVED BY: RESOLUTION NO. DATE:	PUBLIC WORKS STANDARD NO.	
	<p align="center"><b>CITY OF GRIDLEY</b> DEPARTMENT OF PUBLIC WORKS</p> <p align="center">LOCAL STREET</p>	DWG. NO.  <p align="center"><b>7E</b></p>

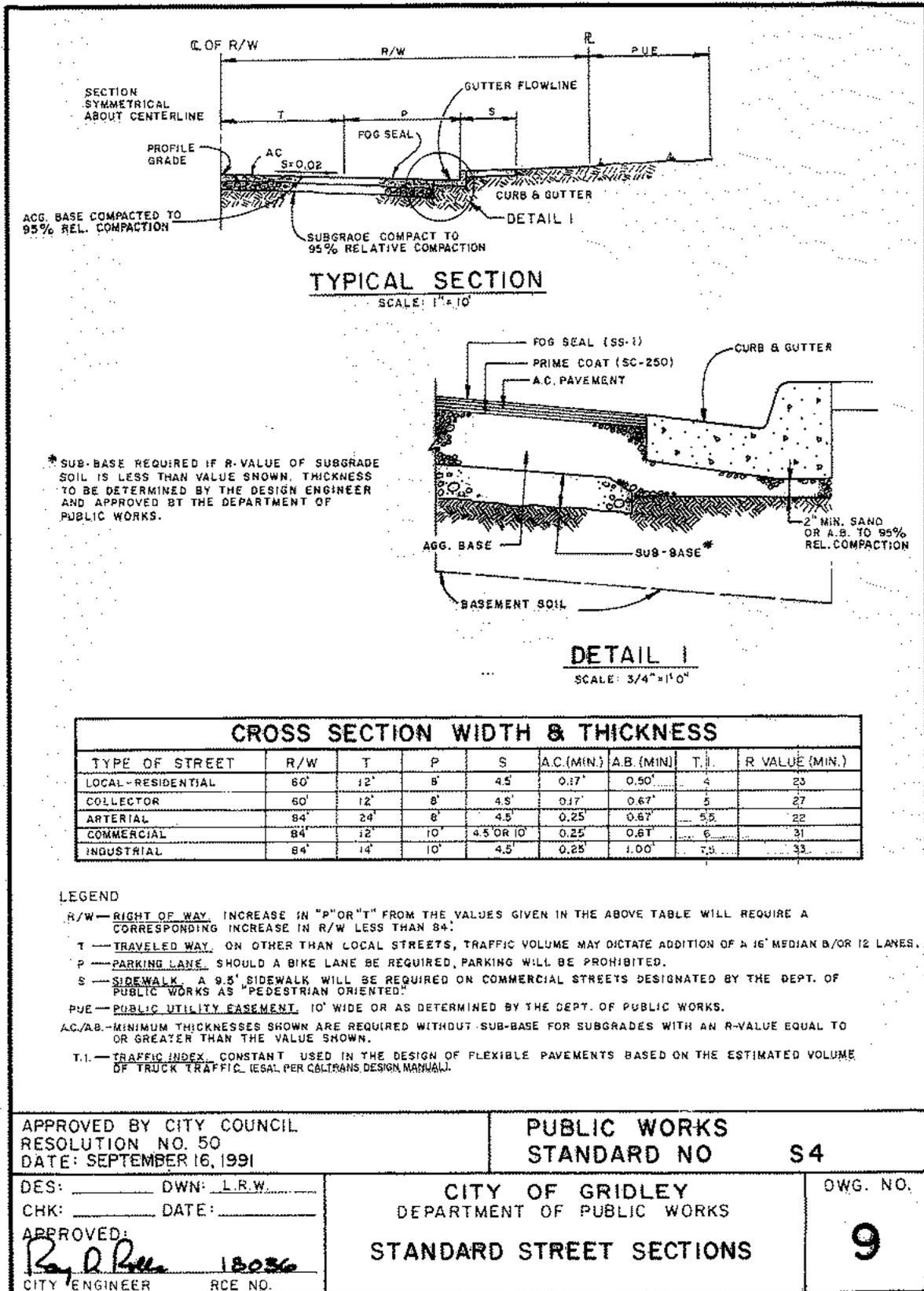


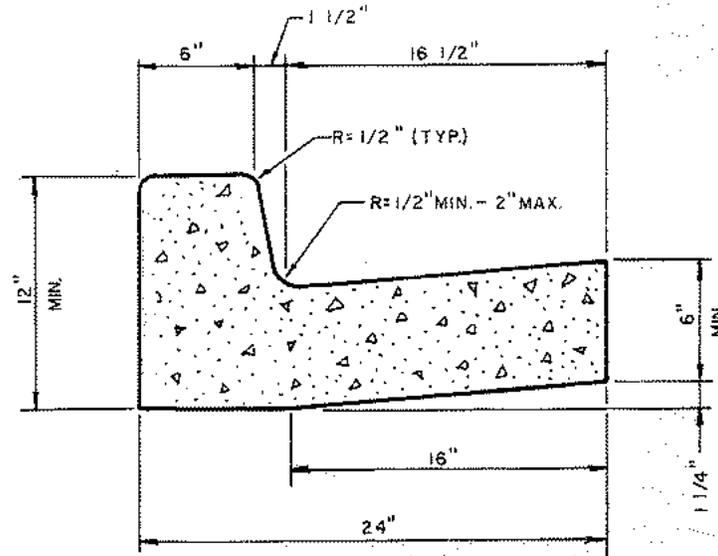
- DEFINITION            A STREET SERVING TRAFFIC WITHIN AN INDUSTRIAL AREA.
- ACCESS                INTERSECTIONS AT GRADE WITH DIRECT ACCESS TO ADJUTING PROPERTY.
- TRAFFIC FEATURES    TRAFFIC CONTROLS AND PARKING RESTRICTIONS, AS WARRANTED.

STRUCTURAL DESIGN SECTION  
{MINIMUM}

AGGREGATE BASE  
PRIME COAT  
ASPHALT CONCRETE  
FOG SEAL

APPROVED BY: RESOLUTION NO. DATE:	PUBLIC WORKS STANDARD NO.	
	<b>CITY OF GRIDLEY</b> DEPARTMENT OF PUBLIC WORKS  <b>INDUSTRIAL STREET</b>	DWG. NO.  <b>8</b>



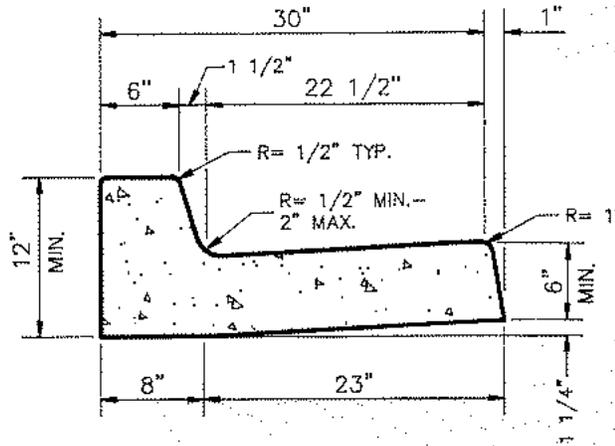


NOTES:

1. CROSS SECTIONAL AREA 1.29 SQUARE FEET.
2. 20.9 LF, PER CUBIC YARD OF CONCRETE.
3. CONCRETE SHALL BE CLASS B P.C.C.
4. AN APPROXIMATE 4-INCH, FLOW LINE SHALL BE LEFT SMOOTH TROWELED.
5. ALL BROOMING SHALL BE PARALLEL TO THE DIRECTION OF FLOW.
6. 1/2 INCH, PRE MOLDED JOINT FILLER SHALL BE INSTALLED IN EXPANSION JOINTS AT REGULAR INTERVALS NOT EXCEEDING 20 FEET, AT THE BC AND EC OF ALL CURB RETURNS AND AT THE END OF ALL DRIVEWAYS, SHALL BE FULL-DEPTH AND COMPLETELY FILL THE JOINT. A DEEP SCORE LINE SHALL BE PLACED PERPENDICULAR TO THE BACK OF CURB AT THE MIDPOINT BETWEEN EXPANSION JOINTS.
7. ~~ALL WORK TO BE DONE~~ AND ALL MATERIALS SUPPLIED SHALL CONFORM TO THE GRIDLEY PUBLIC WORKS CONSTRUCTION STANDARDS.
8. A MINIMUM OF 2 INCHES OF SAND, OR CLASS 2 AGGREGATE BASE, TO BE PLACED UNDER THE CURB AND COMPACTED TO 95% REL. DENSITY.
9. LAMPBLACK OF APPROVED QUALITY SHALL BE MIXED WITH ALL CONCRETE AT THE RATE OF ONE-HALF POUND PER CUBIC YARD.
10. CONTRACTOR SHALL NOTIFY THE CITY ENGINEER FOR INSPECTION AT LEAST 24 HOURS PRIOR TO PLACING CONCRETE.

APPROVED BY CITY COUNCIL RESOLUTION NO. 50 DATE: SEPTEMBER 16, 1991	<b>PUBLIC WORKS STANDARD NO S5</b>	
DES: _____ DWN: L.R.W. CHK: _____ DATE: 11/95	<b>CITY OF GRIDLEY DEPARTMENT OF PUBLIC WORKS</b>	DWG. NO.  <div style="font-size: 2em; font-weight: bold; text-align: center;">10</div>
APPROVED: CITY ENGINEER      RCE NO. 18036	<b>STANDARD 6" CURB AND GUTTER</b>	

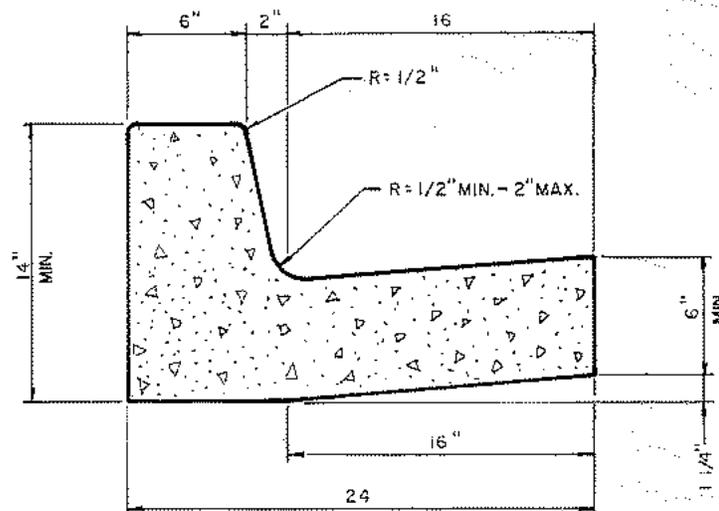




NOTES:

1. CROSS SECTIONAL AREA 1.54 SQUARE FEET.
2. 17.5 L.F. PER CUBIC YARD OF CONCRETE.
3. CONCRETE SHALL BE CLASS B P.C.C.
4. AN APPROXIMATE 4-INCH FLOW LINE SHALL BE LEFT SMOOTH TROWELED.
5. ALL BROOMING SHALL BE PARALLEL TO THE DIRECTION OF FLOW.
6. 1/2 INCH, PRE-MOLDED JOINT FILLER SHALL BE INSTALLED IN EXPANSION JOINTS AT REGULAR INTERVALS NOT EXCEEDING 20 FEET, AT THE B.C. AND E.C. OF ALL CURB RETURNS AND AT THE END OF ALL DRIVEWAYS. SHALL BE FULL-DEPTH AND COMPLETELY FILL THE JOINT. A DEEP SCORE LINE SHALL BE PLACED PERPENDICULAR TO THE BACK OF CURB AT THE MIDPOINT BETWEEN EXPANSION JOINTS.
7. ALL WORK DONE AND ALL MATERIALS SUPPLIED SHALL CONFORM TO THE GRIDLEY PUBLIC WORKS CONSTRUCTION STANDARDS.
8. A MINIMUM OF 2 INCHES OF SAND, OR CLASS 2 AGGREGATE BASE, TO BE PLACED UNDER THE CURB, AND COMPACTED TO 95% REL. DENSITY.
9. LAMPBLACK OF APPROVED QUALITY SHALL BE MIXED WITH ALL CONCRETE AT THE RATE OF 0.5 POUND PER CUBIC YARD.
10. THE CONTRACTOR SHALL NOTIFY THE CITY ENGINEER FOR INSPECTION AT LEAST 24 HOURS PRIOR TO PLACING CONCRETE.

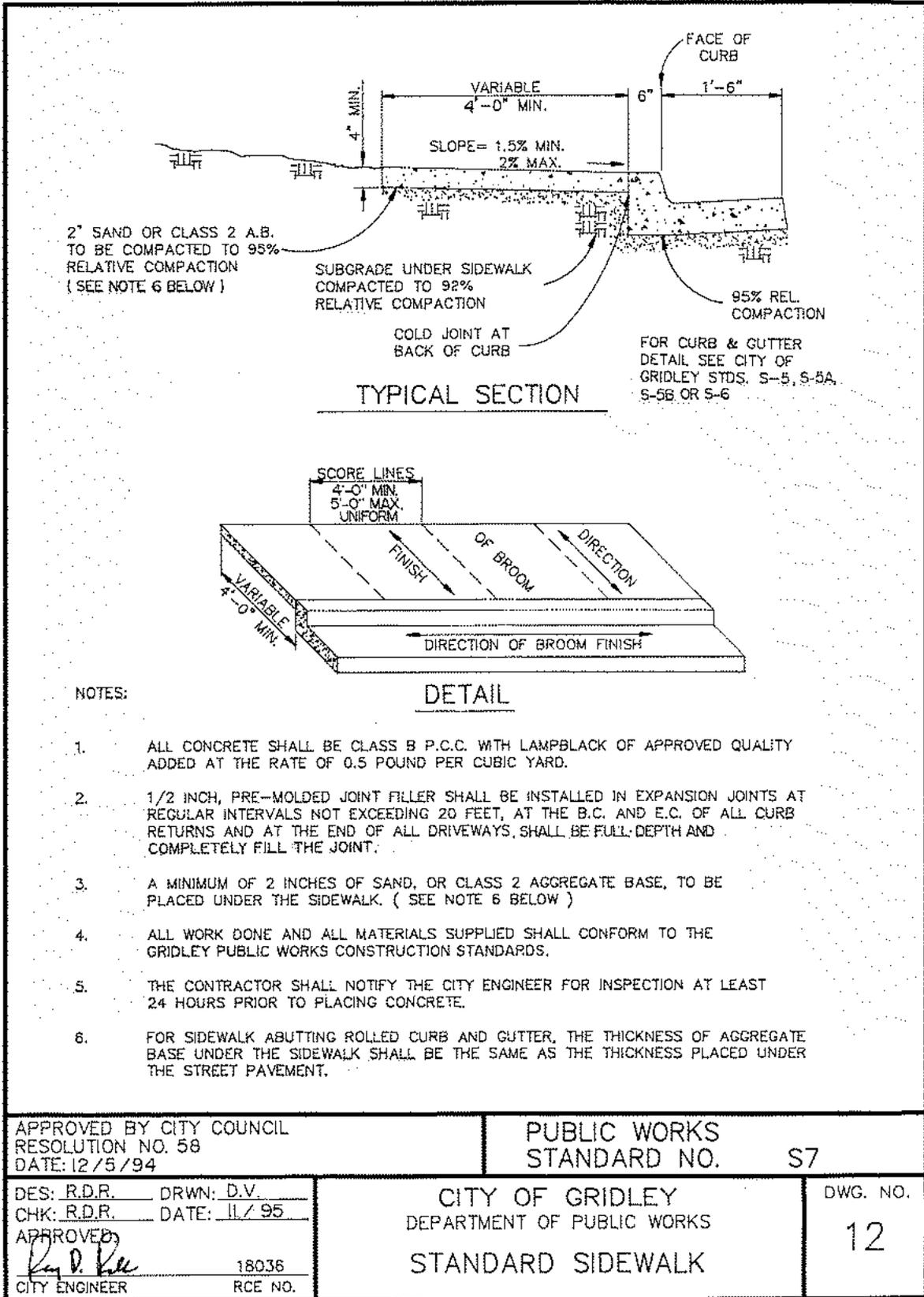
APPROVED BY CITY COUNCIL RESOLUTION NO. 58 DATE: 12/5/94		PUBLIC WORKS STANDARD NO. S5B	
DES: R.D.R. CHK: R.D.R. APPROVED <i>R.D.R.</i> CITY ENGINEER	DRWN: D.V. DATE: 11 / 95 18036 RCE NO.	CITY OF GRIDLEY DEPARTMENT OF PUBLIC WORKS 30" OVERALL WIDTH 6" CURB AND GUTTER	
		DWG. NO. 10B	



NOTES:

1. CROSS SECTIONAL AREA 1.39 SQUARE FEET.
2. 19 LF PER CUBIC YARD OF CONCRETE.
3. CONCRETE SHALL BE CLASS B P.C.C.
4. AN APPROXIMATE 4 INCH FLOWLINE SHALL BE LEFT SMOOTH TROWELED.
5. ALL BROOMING SHALL BE PARALLEL TO THE DIRECTION OF FLOW.
6. 1/2 INCH PRE-MOLDED JOINT FILLER SHALL BE INSTALLED IN EXPANSION JOINTS AT REGULAR INTERVALS NOT EXCEEDING 20 FEET, AT THE BC AND EC OF ALL CURB RETURNS, AND AT THE END OF ALL DRIVEWAYS, SHALL BE FULL-DEPTH AND COMPLETELY FILL THE JOINT. A DEEP SCORE LINE SHALL BE PLACED PERPENDICULAR TO THE BACK OF CURB AT THE MIDPOINT BETWEEN EXPANSION JOINTS.
7. ALL WORK TO BE DONE, AND ALL MATERIALS SUPPLIED, SHALL CONFORM TO THE GRIDLEY PUBLIC WORKS CONSTRUCTION STANDARDS.
8. A MINIMUM OF 2 INCHES OF SAND, OR CLASS 2 AGGREGATE BASE, TO BE PLACED UNDER THE CURB AND COMPACTED TO 95% REL. DENSITY.
9. LAMPBLACK OF APPROVED QUALITY SHALL BE MIXED WITH ALL CONCRETE AT THE RATE OF ONE-HALF POUND PER CUBIC YARD.
10. CONTRACTOR SHALL NOTIFY THE CITY ENGINEER FOR INSPECTION AT LEAST 24 HOURS PRIOR TO PLACING CONCRETE.

APPROVED BY CITY COUNCIL RESOLUTION NO: 50 DATE: SEPTEMBER 16, 1991	<b>PUBLIC WORKS STANDARD NO S6</b>	
DES: _____ DWN: L.R.W. CHK: _____ DATE: 11 / 95 APPROVED: <i>Ray D. Pelt</i> 18036 CITY ENGINEER RCE NO.	<b>CITY OF GRIDLEY DEPARTMENT OF PUBLIC WORKS STANDARD 8" CURB AND GUTTER</b>	DWG. NO.  <b>11</b>



**NOTES:**

1. ALL WORK TO BE DONE AND MATERIALS SUPPLIED SHALL CONFORM TO THE GRIDLEY PUBLIC WORKS CONSTRUCTION STANDARDS.
2. ALL CONCRETE SHALL BE CLASS B P.C.C. WITH LAMPBLACK OF APPROVED QUALITY MIXED AT THE RATE OF ONE-HALF POUND PER CUBIC YARD.
3. THE AREA INCLUDED WITHIN THE SLOPES OF THE DRIVEWAY SHALL BE GIVEN A HEAVY BROOM FINISH AFTER BEING TROWELED.
4. SCORING LINES SHALL CORRESPOND WITH SCORING LINES IN THE ADJACENT SIDEWALK UNLESS OTHERWISE SPECIFIED.
5. TOP OF LIP AT FLOWLINE TO BE TROWELED STRAIGHT AND TRUE.
6. EXPANSION JOINTS SHALL BE CONSTRUCTED ON C OF ALL DRIVEWAYS 25 FEET OR MORE IN WIDTH.
7. WHERE CURB IS EXISTING AND NO DEPRESSION HAS BEEN PROVIDED, CURB SHALL BE REMOVED TO THE FIRST EXPANSION JOINT BEYOND EITHER SIDE.
8. DRIVEWAYS SHALL NOT BE CONSTRUCTED CLOSER THAN 20 FEET TO STREET CURB RETURNS UNLESS APPROVED BY THE ENGINEER.
9. ALLEY CURB RETURN MAY BE DEPRESSED AS PART OF THE DRIVEWAY ONLY WHEN APPROVED BY THE ENGINEER.
10. THE MINIMUM LENGTH OF FULL HEIGHT CURB BETWEEN DRIVEWAYS ON THE SAME LOT SHALL BE 24 FEET.
11. THE MINIMUM LENGTH OF FULL HEIGHT CURB BETWEEN DRIVEWAYS ON ADJACENT LOTS SHALL BE 6 FEET.
12. WHERE AN EXISTING SIDEWALK IS IN PLACE, IT SHALL BE REMOVED TO THE FIRST EXPANSION JOINT BEYOND EITHER SIDE.

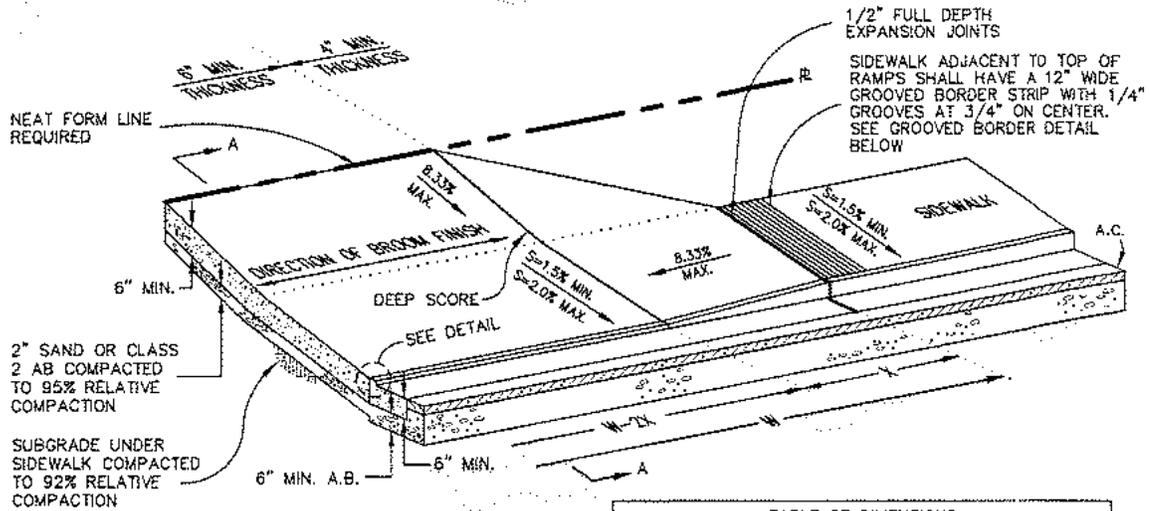
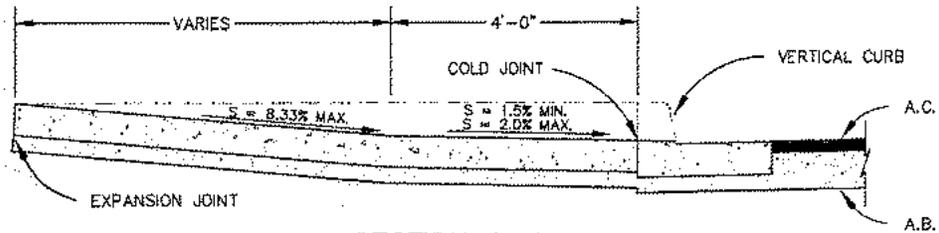
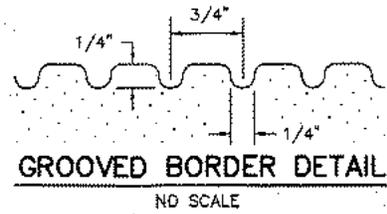
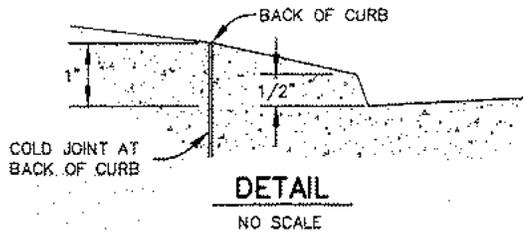


TABLE OF DIMENSIONS			
CURB FACE	X DIST	W MIN.	W-2X MIN.
6"	5'-0"	22'	12'
8"	7'-0"	26'	12'



APPROVED BY CITY COUNCIL  
RESOLUTION NO. 2004-R-028  
DATE: JULY 6, 2004

PUBLIC WORKS  
STANDARD NO. S8

DES: P.W.R. DRWN: P.W.R.  
CHK: H.L.V. DATE: JUNE 2004  
APPROVED:

CITY OF GRIDLEY  
DEPARTMENT OF PUBLIC WORKS  
STANDARD RESIDENTIAL DRIVEWAY  
(CONTIGUOUS SIDEWALK)

DWG. NO.

13

*Barbara A. Nantz* 33381  
CITY ENGINEER RCE NO.

**NOTES:**

1. ALL WORK TO BE DONE AND MATERIALS SUPPLIED SHALL CONFORM TO THE GRIDLEY PUBLIC WORKS CONSTRUCTION STANDARDS.
2. ALL CONCRETE SHALL BE CLASS B P.C.C. WITH LAMPBLACK OF APPROVED QUALITY MIXED AT THE RATE OF ONE-HALF POUND PER CUBIC YARD.
3. THE AREA INCLUDED WITHIN THE SLOPES OF THE DRIVEWAY SHALL BE GIVEN A HEAVY BROOM FINISH AFTER BEING TROWELED.
4. SCORING LINES SHALL CORRESPOND WITH SCORING LINES IN THE ADJACENT SIDEWALK UNLESS OTHERWISE SPECIFIED.
5. TOP OF LIP AT FLOWLINE TO BE TROWELED STRAIGHT AND TRUE.
6. EXPANSION JOINTS SHALL BE CONSTRUCTED ON  $\phi$  OF ALL DRIVEWAYS 25 FEET OR MORE IN WIDTH.
7. WHERE CURB IS EXISTING AND NO DEPRESSION HAS BEEN PROVIDED, CURB SHALL BE REMOVED TO THE FIRST EXPANSION JOINT BEYOND EITHER SIDE.
8. DRIVEWAYS SHALL NOT BE CONSTRUCTED CLOSER THAN 20 FEET TO STREET CURB RETURNS UNLESS APPROVED BY THE ENGINEER.
9. ALLEY CURB RETURN MAY BE DEPRESSED AS PART OF THE DRIVEWAY ONLY WHEN APPROVED BY THE ENGINEER.
10. THE MINIMUM LENGTH OF FULL HEIGHT CURB BETWEEN DRIVEWAYS ON THE SAME LOT SHALL BE 24 FEET.
11. THE MINIMUM LENGTH OF FULL HEIGHT CURB BETWEEN DRIVEWAYS ON ADJACENT LOTS SHALL BE 6 FEET.
12. WHERE AN EXISTING SIDEWALK IS IN PLACE, IT SHALL BE REMOVED TO THE FIRST EXPANSION JOINT BEYOND EITHER SIDE.

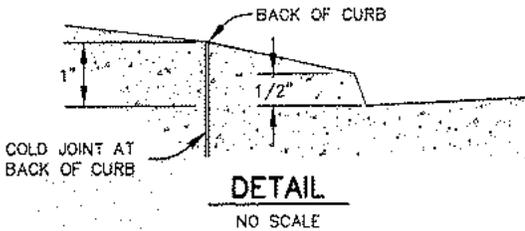
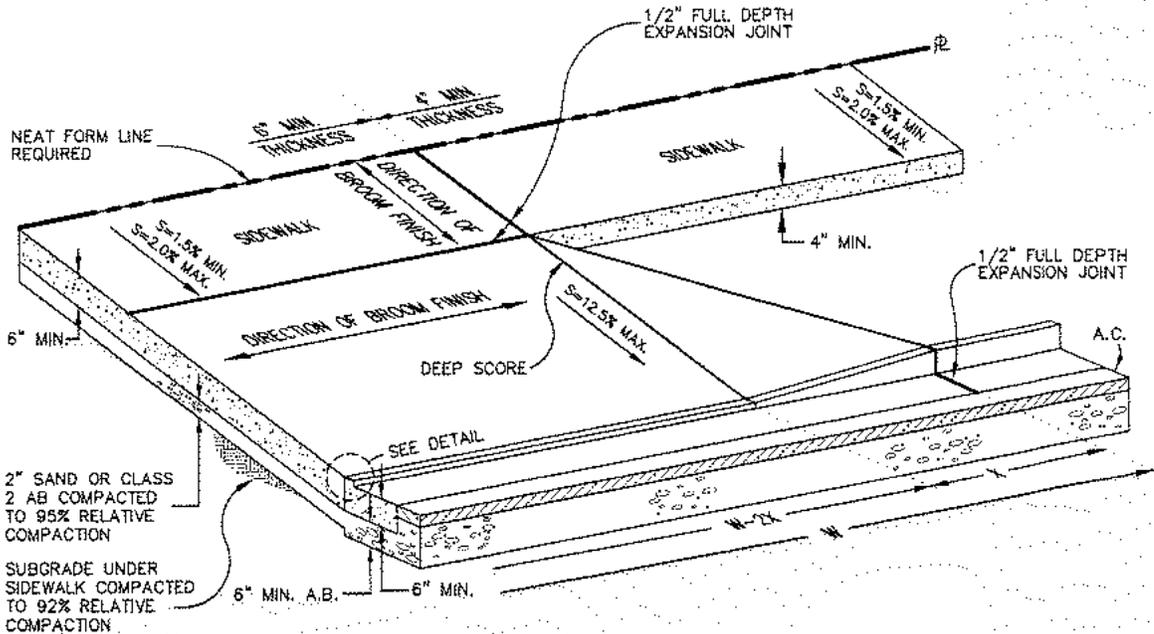
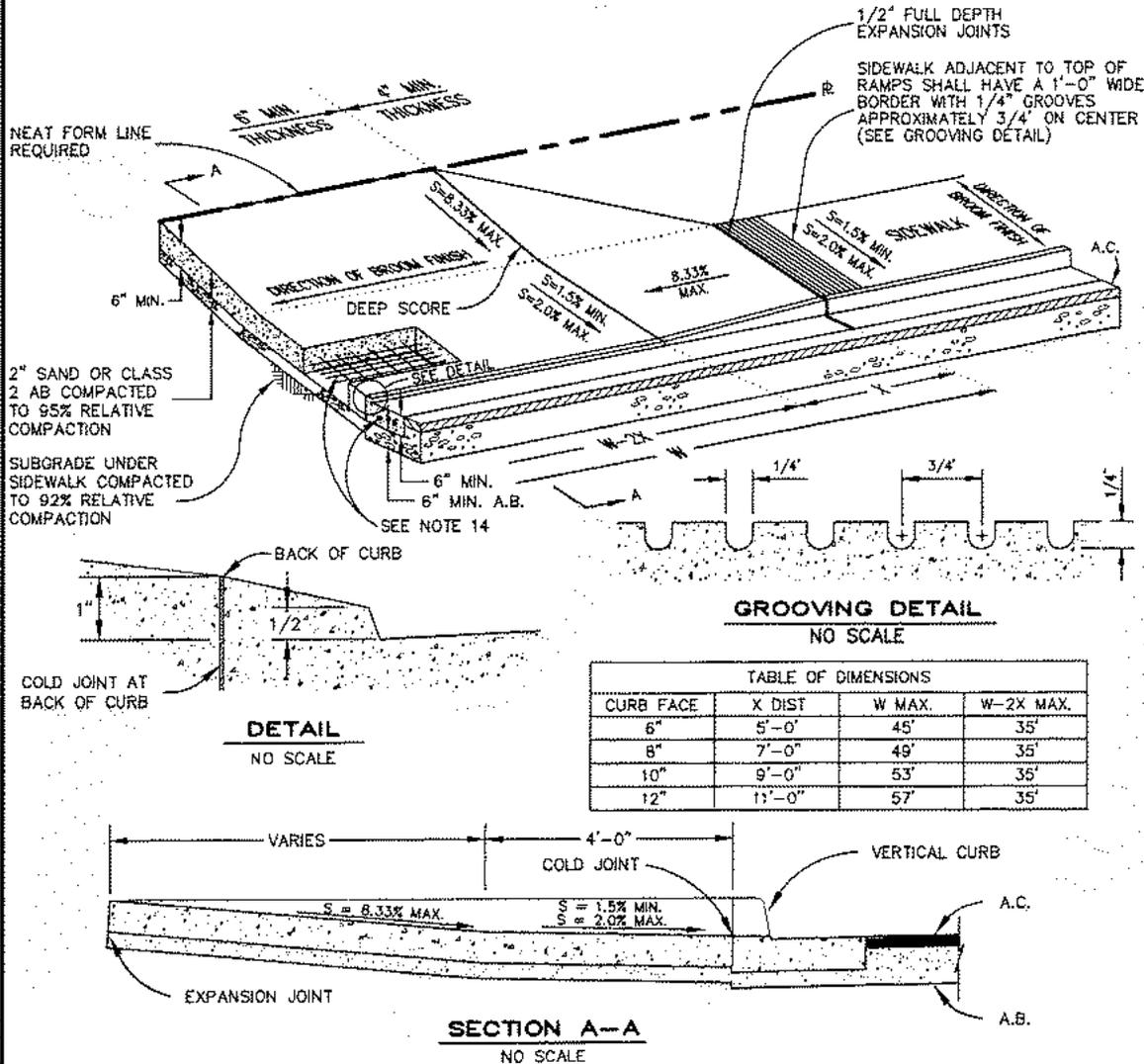


TABLE OF DIMENSIONS			
CURB FACE	X DIST	W MIN.	W-2X MIN.
6"	4'-0"	19'	12'
8"	5'-0"	22'	12'
10"	6'-0"	24'	12'
12"	7'-0"	26'	12'

APPROVED BY CITY COUNCIL RESOLUTION NO. 2004-R-028 DATE: JULY 6, 2004	<b>PUBLIC WORKS STANDARD NO. S8A</b>	
DES: P.W.R. DRWN: P.W.R. CHK: H.L.V. DATE: JUNE 2004 APPROVED: <i>Charles A. Mark</i> 33381 CITY ENGINEER RCE NO.	<b>CITY OF GRIDLEY DEPARTMENT OF PUBLIC WORKS</b> <b>STANDARD RESIDENTIAL DRIVEWAY (SEPARATED SIDEWALK)</b>	DWG. NO. <b>13A</b>

**NOTES:**

1. ALL WORK TO BE DONE AND MATERIALS SUPPLIED SHALL CONFORM TO THE GRIDLEY PUBLIC WORKS CONSTRUCTION STANDARDS.
2. ALL CONCRETE SHALL BE CLASS B P.C.C. WITH LAMPBLACK ADDED AT THE RATE OF ONE-HALF POUND PER CUBIC YARD.
3. THE AREA INCLUDED WITHIN THE SLOPES OF THE DRIVEWAY SHALL BE GIVEN A HEAVY BROOM FINISH AFTER BEING TROWELED.
4. SCORING LINES SHALL CORRESPOND WITH SCORING LINES IN THE ADJACENT SIDEWALK UNLESS OTHERWISE SPECIFIED.
5. WHERE CURB IS EXISTING AND NO DEPRESSION HAS BEEN PROVIDED, CURB SHALL BE REMOVED TO THE NEAREST EXPANSION JOINT BEYOND EITHER SIDE.
6. DRIVEWAYS SHALL NOT BE CONSTRUCTED CLOSER THAN 20 FEET TO STREET CURB RETURNS UNLESS APPROVED BY THE ENGINEER.
7. MINIMUM LENGTH OF FULL HEIGHT CURB BETWEEN DRIVEWAYS ON THE SAME LOT SHALL BE 24 FEET.
8. WHERE AN EXISTING SIDEWALK IS IN PLACE AND IS LESS THAN THE REQUIRED THICKNESS, THAT PORTION OF SUCH SIDEWALK WITHIN THE LIMITS OF THE DRIVEWAY SHALL BE REMOVED TO THE NEAREST EXPANSION JOINT BEYOND EITHER SIDE.
9. THE TOTAL LENGTH OF DRIVEWAYS CONSTRUCTED ON ANY SINGLE BUSINESS FRONTAGE SHALL NOT EXCEED SIXTY(60) PERCENT OF SAID PROPERTY FRONTAGE UNLESS APPROVED BY THE ENGINEER.
10. THE MINIMUM LENGTH OF FULL HEIGHT CURB BETWEEN ADJACENT LOTS SHALL BE 6 FEET.
11. EXPANSION JOINTS SHALL BE CONSTRUCTED ON C. OF DRIVEWAYS 25 FEET OR MORE IN WIDTH.
12. DRIVEWAY WIDTH MAY BE INCREASED WHEN APPROVED BY THE ENGINEER.
13. TOP OF LIP AT FLOWLINE TO BE TROWELED STRAIGHT AND TRUE.
14. ALL DRIVEWAYS SHALL HAVE 2 NO. 4 REBARS 12' O.C. IN THE GUTTER AND 6' X 6' 10 GA. WIRE MESH THROUGHOUT THE APPROACH.



APPROVED BY CITY COUNCIL  
RESOLUTION NO. 2008-R-055  
DATE: AUGUST 18, 2008

PUBLIC WORKS  
STANDARD NO. S9

DES: H.L.V. DRWN: P.W.R.  
CHK: B.A.N. DATE: JULY 2008  
APPROVED:  
*Spencer A. Nason* 33381  
CITY ENGINEER RCE NO.

CITY OF GRIDLEY  
DEPARTMENT OF PUBLIC WORKS  
STANDARD COMMERCIAL DRIVEWAY  
(CONTIGUOUS SIDEWALK)

DWG. NO.  
**14**

**NOTES:**

1. ALL WORK TO BE DONE AND MATERIALS SUPPLIED SHALL CONFORM TO THE GRIDLEY PUBLIC WORKS CONSTRUCTION STANDARDS.
2. ALL CONCRETE SHALL BE CLASS B P.C.C. WITH LAMPBLACK ADDED AT THE RATE OF ONE-HALF POUND PER CUBIC YARD.
3. THE AREA INCLUDED WITHIN THE SLOPES OF THE DRIVEWAY SHALL BE GIVEN A HEAVY BROOM FINISH AFTER BEING TROWELED.
4. SCORING LINES SHALL CORRESPOND WITH SCORING LINES IN THE ADJACENT SIDEWALK UNLESS OTHERWISE SPECIFIED.
5. WHERE CURB IS EXISTING AND NO DEPRESSION HAS BEEN PROVIDED, CURB SHALL BE REMOVED TO THE NEAREST EXPANSION JOINT BEYOND EITHER SIDE.
6. DRIVEWAYS SHALL NOT BE CONSTRUCTED CLOSER THAN 20 FEET TO STREET CURB RETURNS UNLESS APPROVED BY THE ENGINEER.
7. MINIMUM LENGTH OF FULL HEIGHT CURB BETWEEN DRIVEWAYS ON THE SAME LOT SHALL BE 24 FEET.
8. WHERE AN EXISTING SIDEWALK IS IN PLACE AND IS LESS THAN THE REQUIRED THICKNESS, THAT PORTION OF SUCH SIDEWALK WITHIN THE LIMITS OF THE DRIVEWAY SHALL BE REMOVED TO THE NEAREST EXPANSION JOINT BEYOND EITHER SIDE.
9. THE TOTAL LENGTH OF DRIVEWAYS CONSTRUCTED ON ANY SINGLE BUSINESS FRONTAGE SHALL NOT EXCEED SIXTY(60) PERCENT OF SAID PROPERTY FRONTAGE UNLESS APPROVED BY THE ENGINEER.
10. THE MINIMUM LENGTH OF FULL HEIGHT CURB BETWEEN ADJACENT LOTS SHALL BE 6 FEET.
11. EXPANSION JOINTS SHALL BE CONSTRUCTED ON C. OF DRIVEWAYS 25 FEET OR MORE IN WIDTH.
12. DRIVEWAY WIDTH MAY BE INCREASED WHEN APPROVED BY THE ENGINEER.
13. TOP OF UP AT FLOWLINE TO BE TROWELED STRAIGHT AND TRUE.
14. ALL DRIVEWAYS SHALL HAVE 2 NO. 4 REBARS 12" O.C. IN THE CUTTER AND 6" X 6" 10 GA. WIRE MESH THROUGHOUT THE APPROACH.

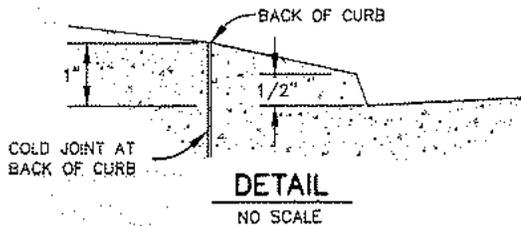
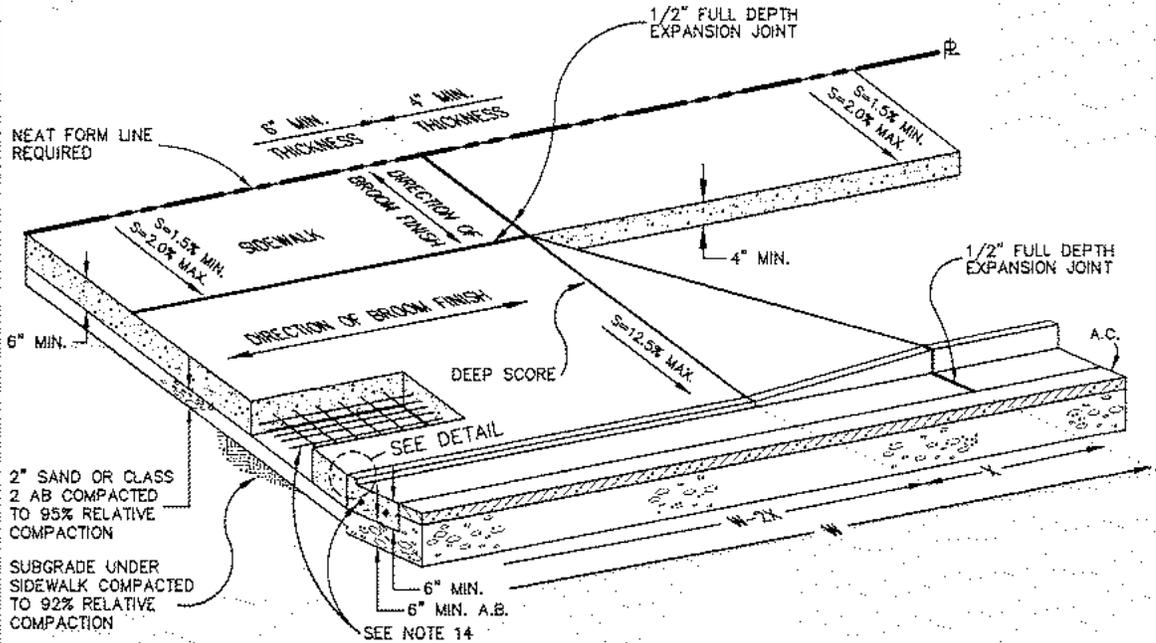
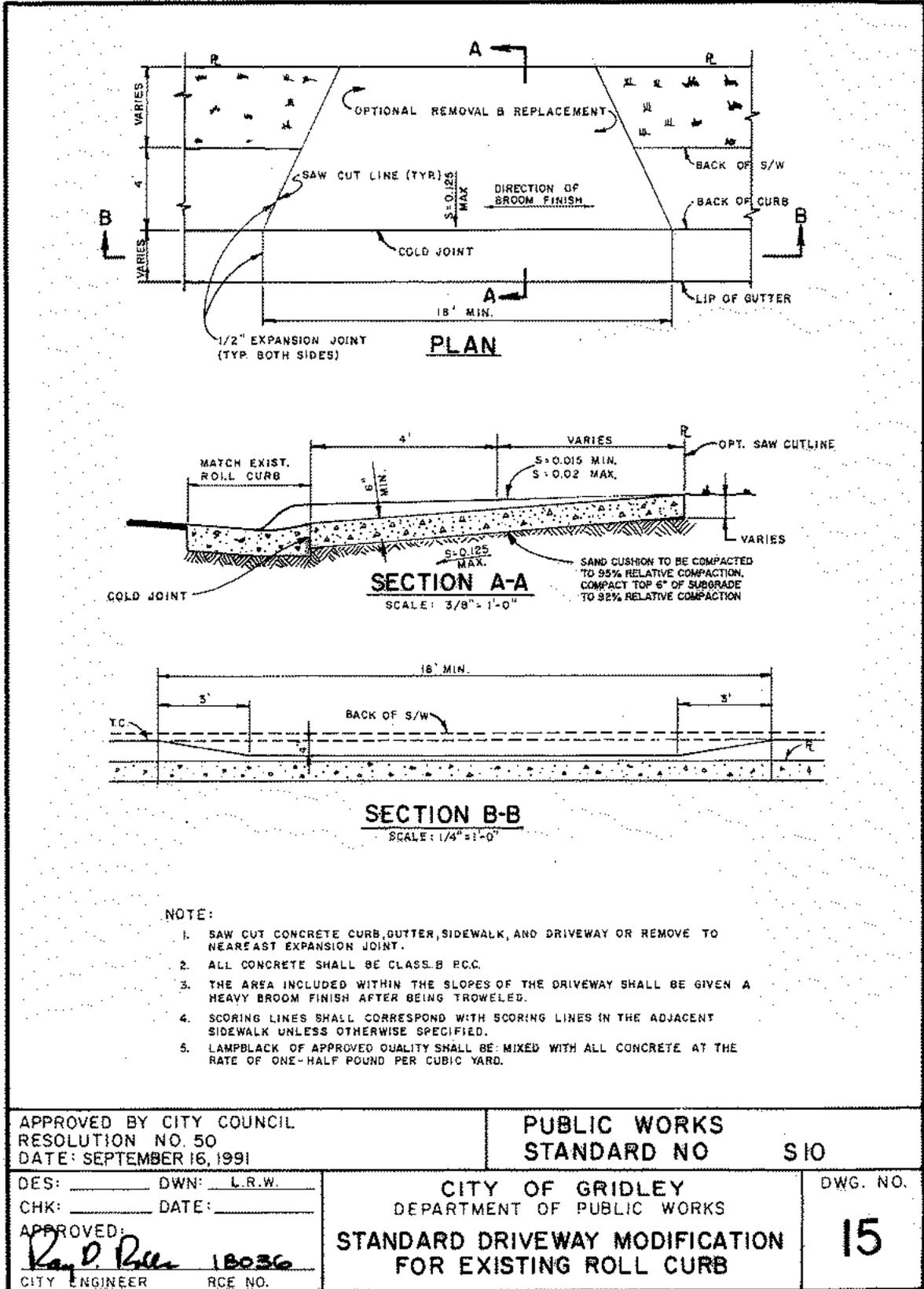
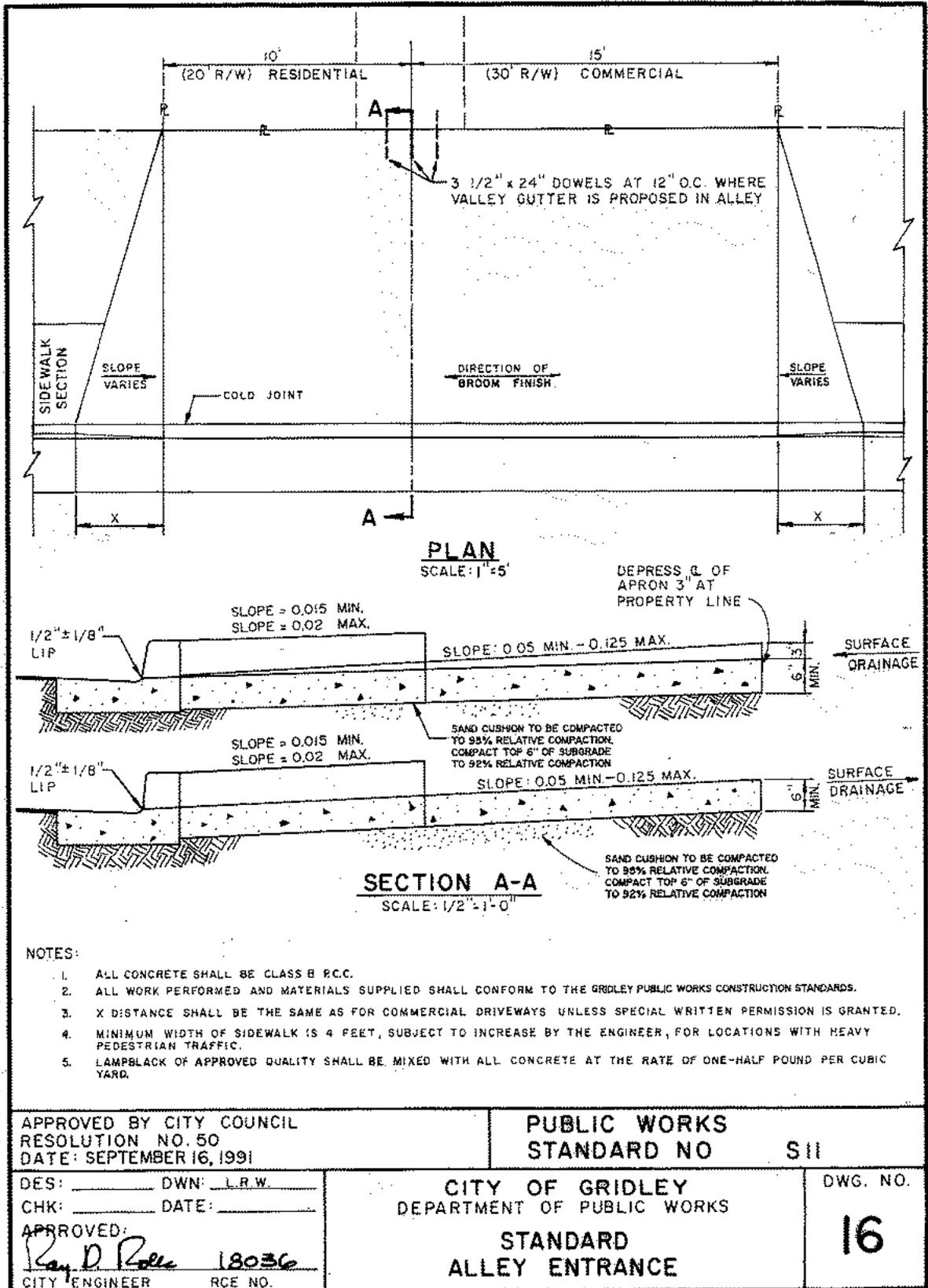
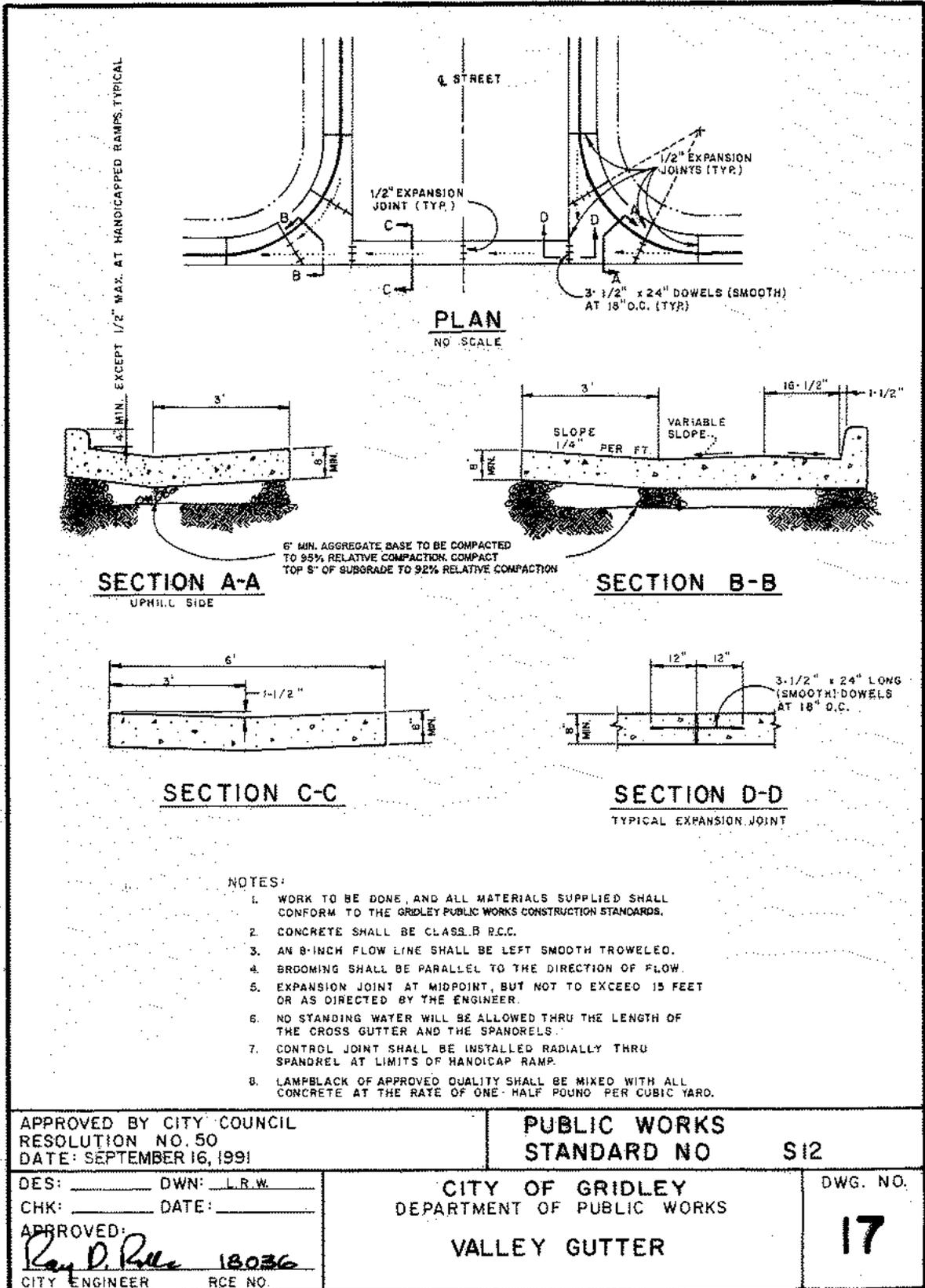


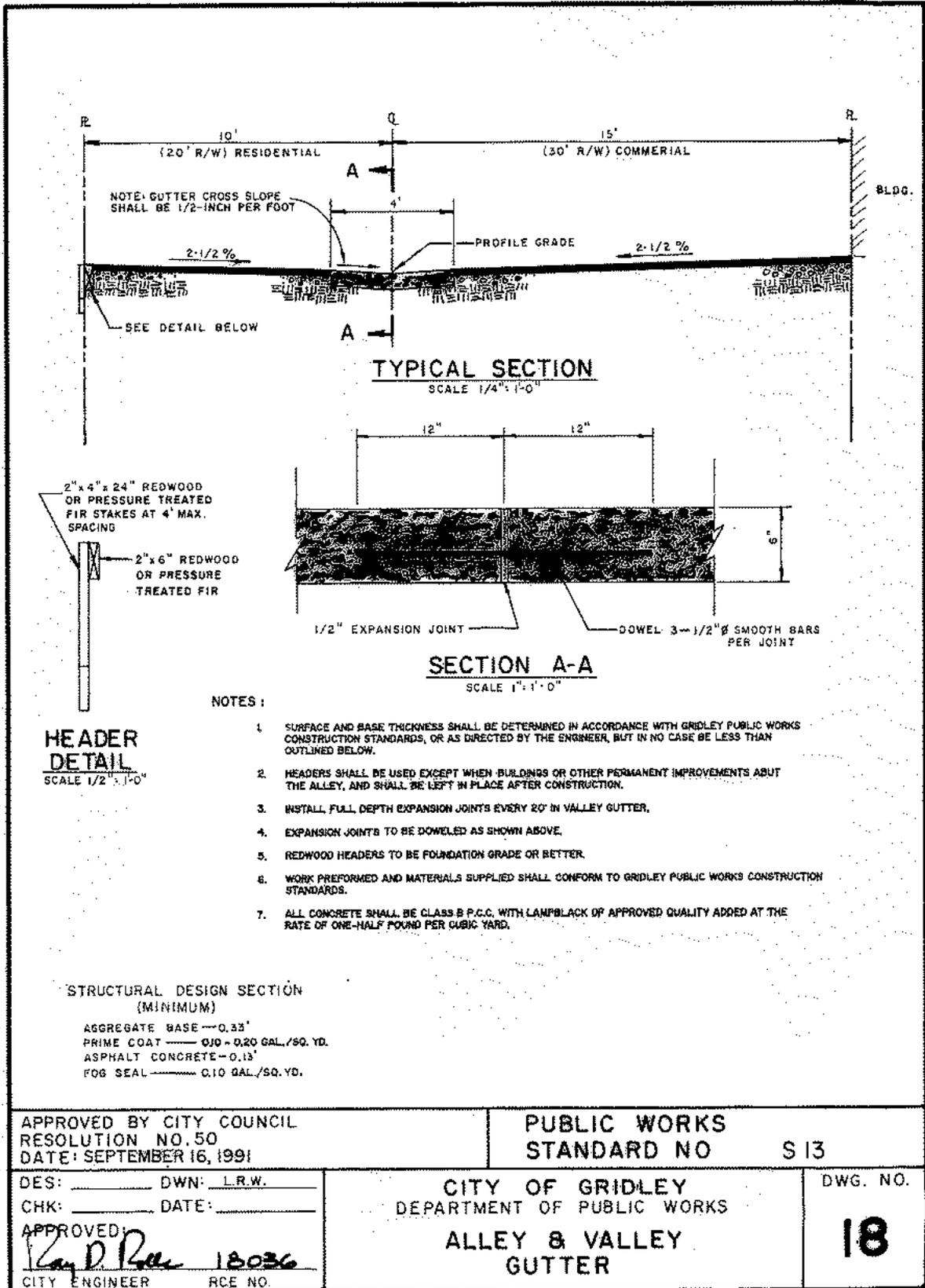
TABLE OF DIMENSIONS			
CURB FACE	X DIST	W MAX.	W-2X MAX.
6"	4'-0"	43'	35'
8"	5'-0"	45'	35'
10"	6'-0"	47'	35'
12"	7'-0"	49'	35'

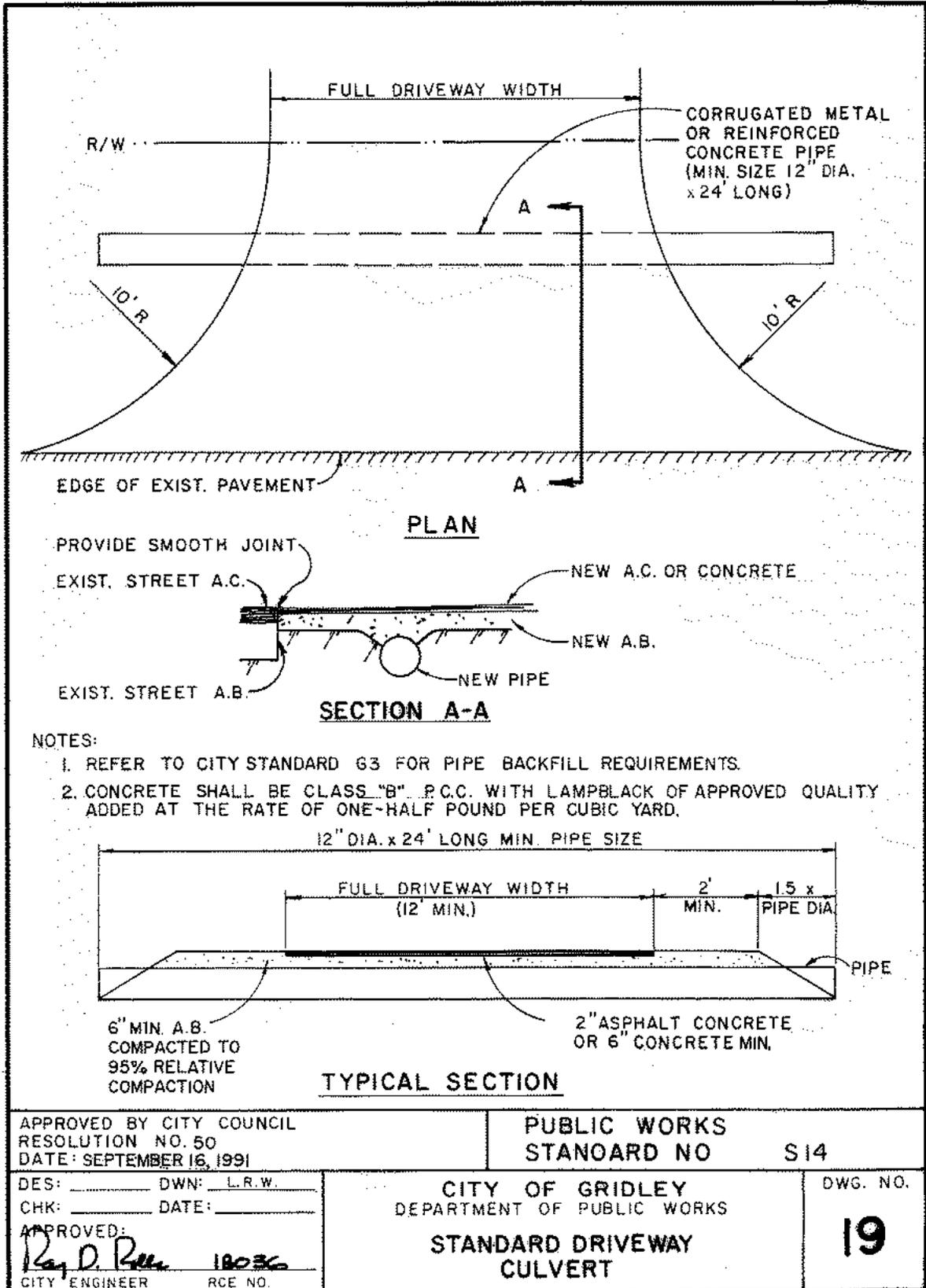
APPROVED BY CITY COUNCIL RESOLUTION NO. 2004-R-028 DATE: JULY 6, 2004	<b>PUBLIC WORKS STANDARD NO. S9A</b>	
DES: P.W.R. DRWN: P.W.R. CHK: H.L.V. DATE: JUNE 2004 APPROVED: <i>Bruce A. Nish</i> 33381 CITY ENGINEER RCE NO.	<b>CITY OF GRIDLEY DEPARTMENT OF PUBLIC WORKS</b> <b>STANDARD COMMERCIAL DRIVEWAY (SEPARATED SIDEWALK)</b>	DWG. NO. <b>14A</b>

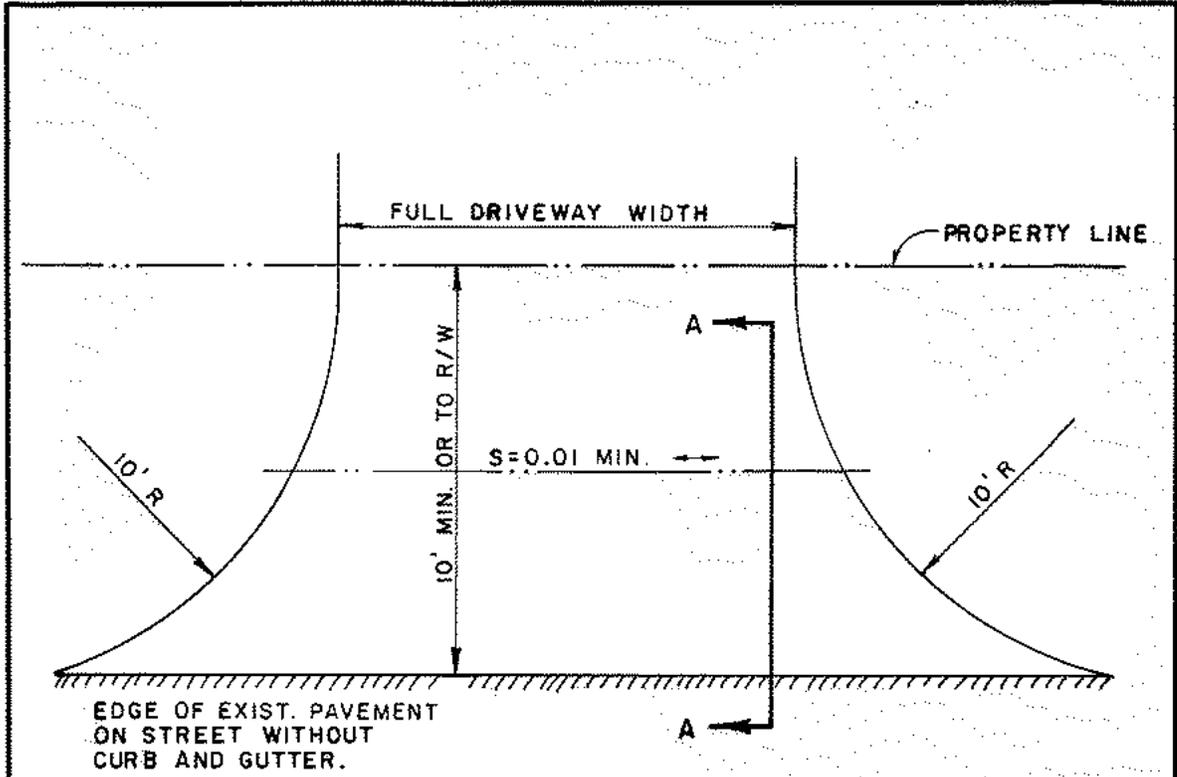




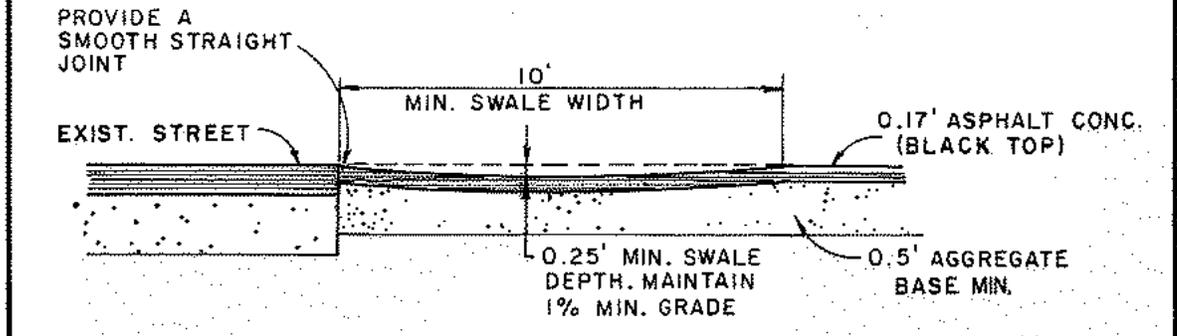






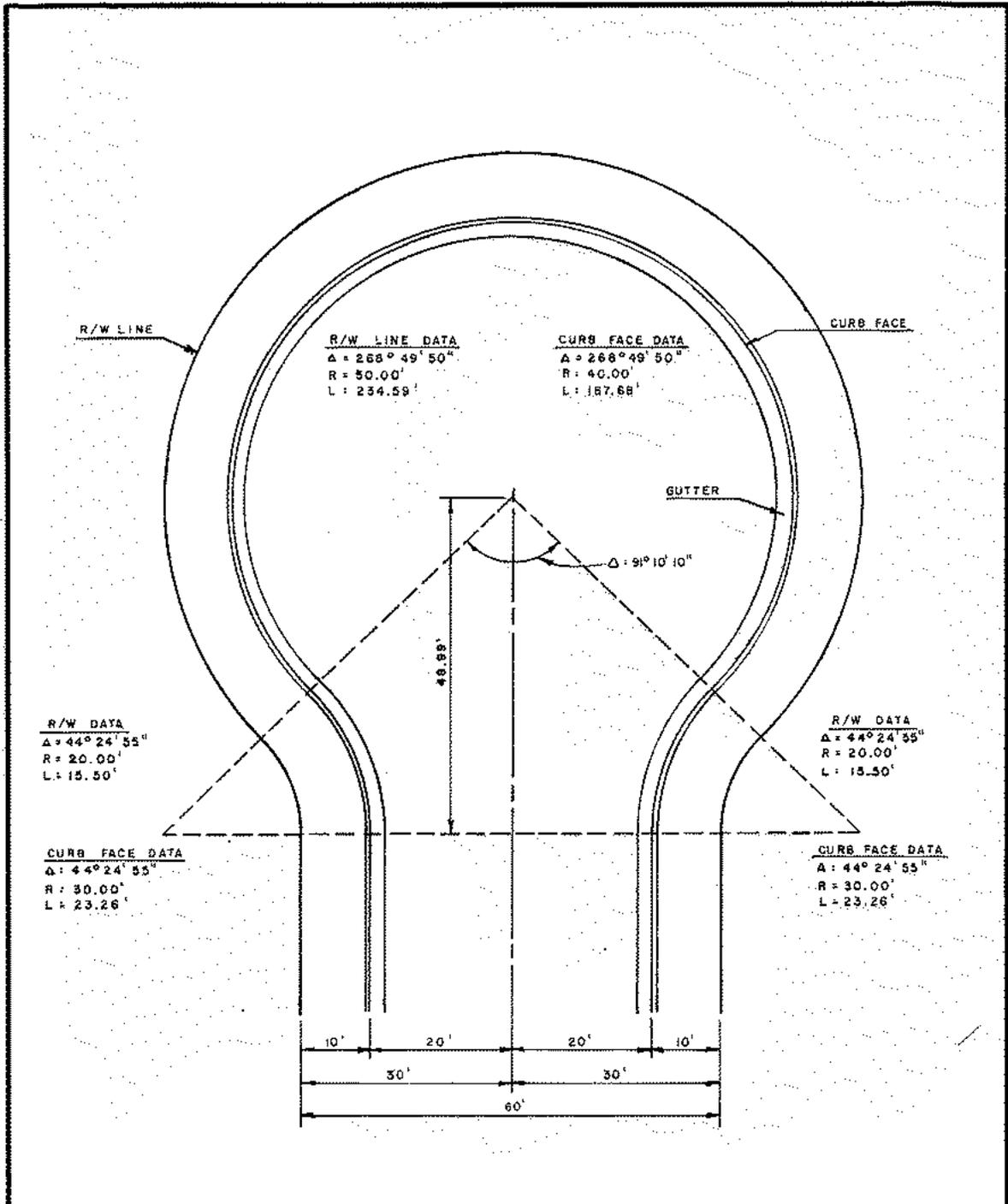


**PLAN**

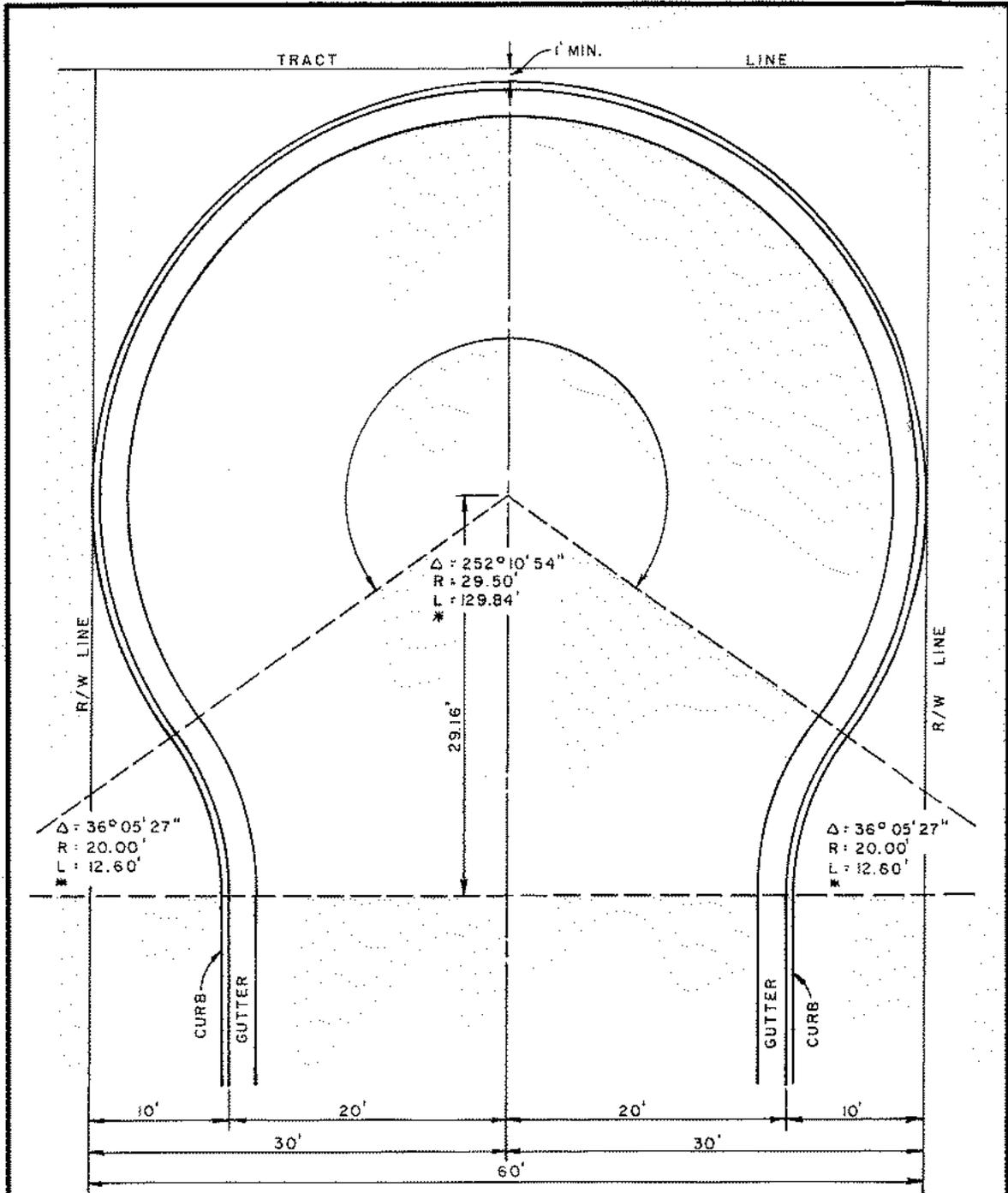


**SECTION A-A**

APPROVED BY CITY COUNCIL RESOLUTION NO 50 DATE: SEPTEMBER 16, 1991		PUBLIC WORKS STANDARD NO S15	
DES: _____ DWN: L.R.W.	CHK: _____ DATE: _____	CITY OF GRIDLEY DEPARTMENT OF PUBLIC WORKS <b>DRIVEWAY APPROACH SWALE</b>	DWG. NO.
APPROVED: <i>Ray D. Peltz</i> CITY ENGINEER	18036 RCE NO.		<b>20</b>



APPROVED BY CITY COUNCIL RESOLUTION NO 50 DATE: SEPTEMBER 16, 1991		PUBLIC WORKS STANDARD NO S16	
DES: _____	DWN: _____	CITY OF GRIDLEY DEPARTMENT OF PUBLIC WORKS	
CHK: _____	DATE: _____	STANDARD CUL-DE-SAC	
APPROVED: <i>Ray D. Peltz</i> CITY ENGINEER		RCE NO. 18036	DWG. NO. 21



\*NOTE: ALL CURVE DATA IS TO FACE OF CURB

APPROVED BY CITY COUNCIL  
 RESOLUTION NO 50  
 DATE: SEPTEMBER 16, 1991

PUBLIC WORKS  
 STANDARD NO S17

DES: \_\_\_\_\_ DWN: \_\_\_\_\_ L.R.W. \_\_\_\_\_  
 CHK: \_\_\_\_\_ DATE: \_\_\_\_\_

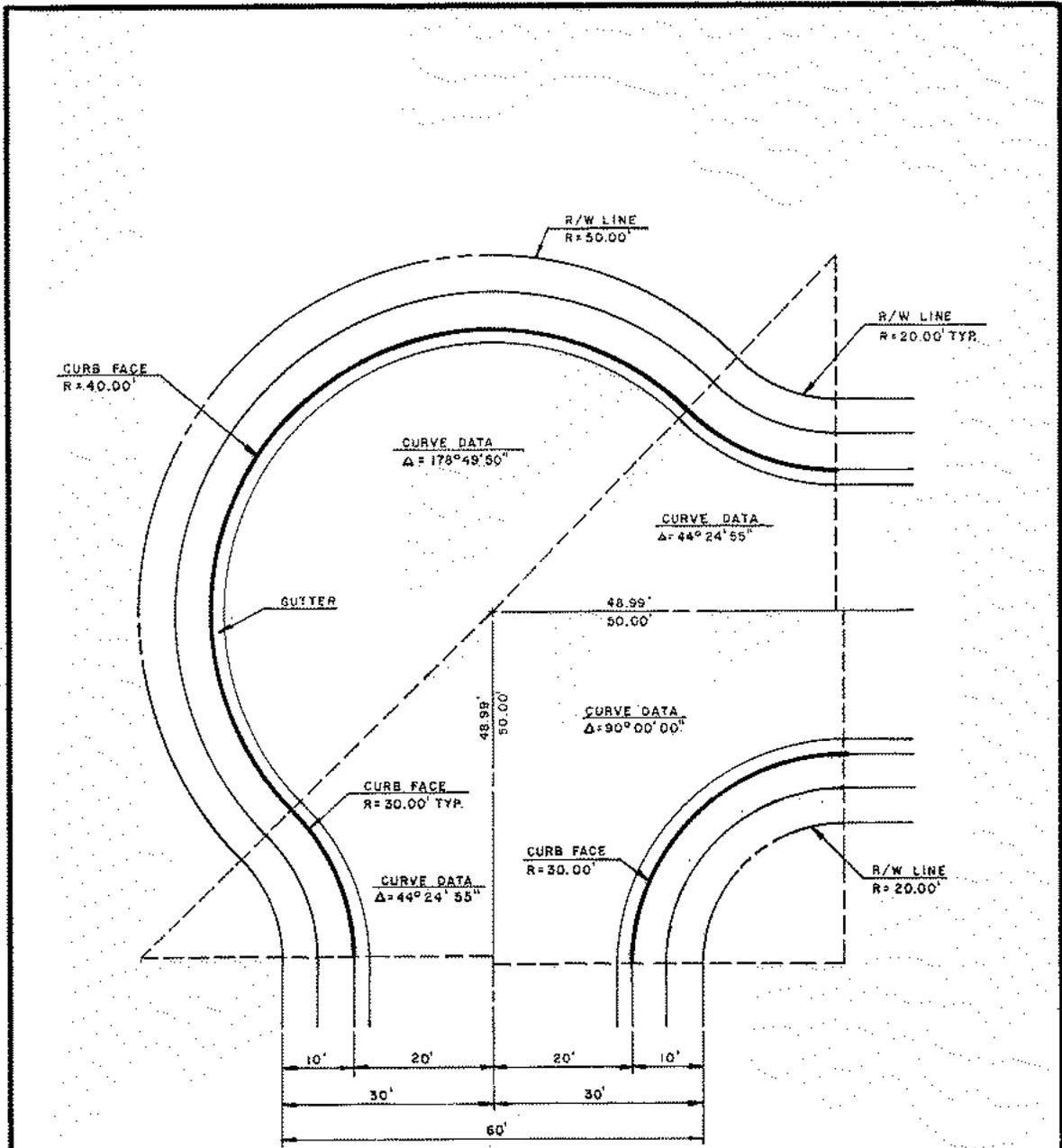
CITY OF GRIDLEY  
 DEPARTMENT OF PUBLIC WORKS

DWG. NO.

APPROVED:  
*Ray D. P...*  
 CITY ENGINEER RCE NO. 18036

TEMPORARY CUL-DE-SAC

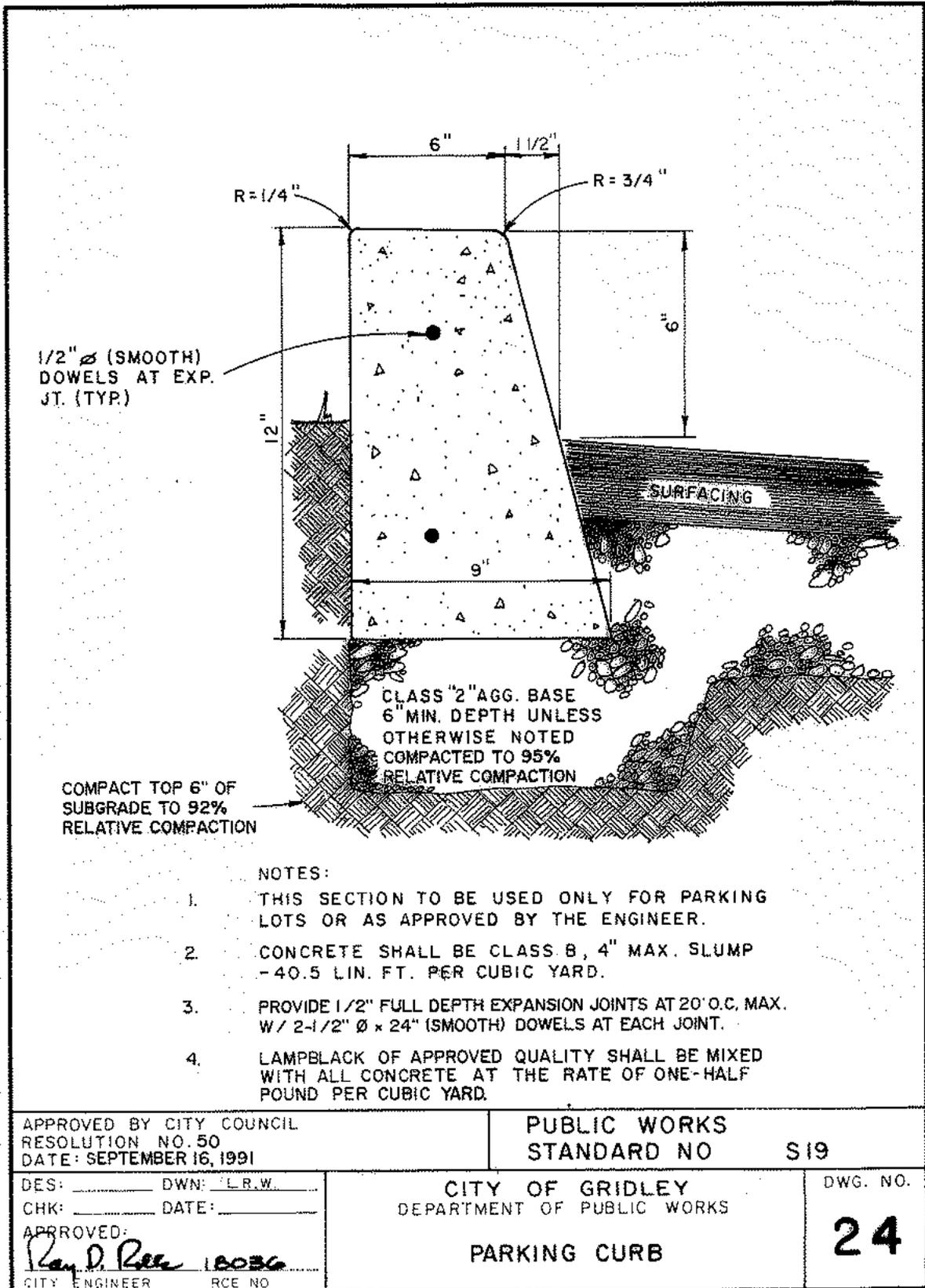
**22**

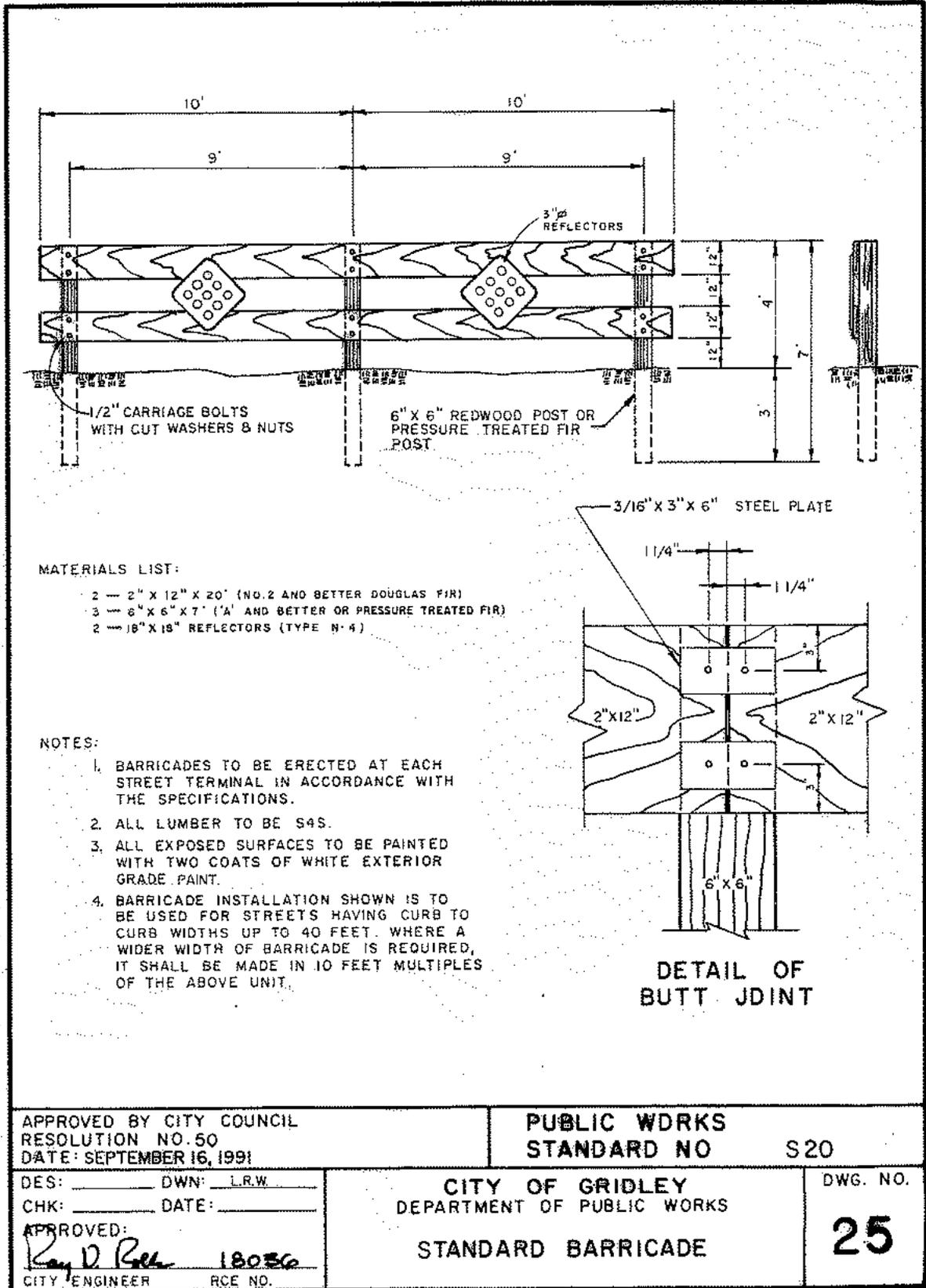


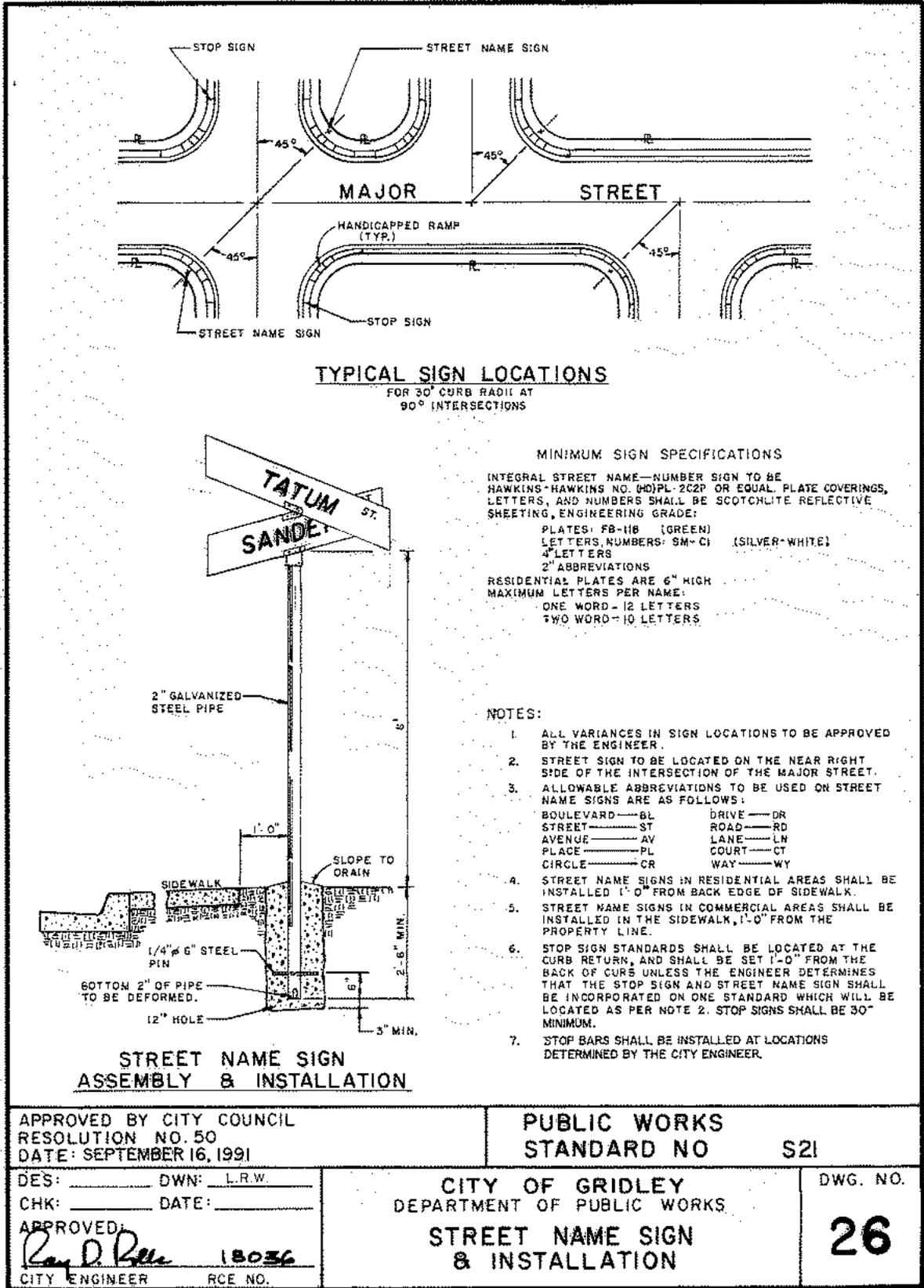
NOTE: HANDICAPPED RAMP LOCATIONS TO BE DETERMINED BY THE CITY ENGINEER.

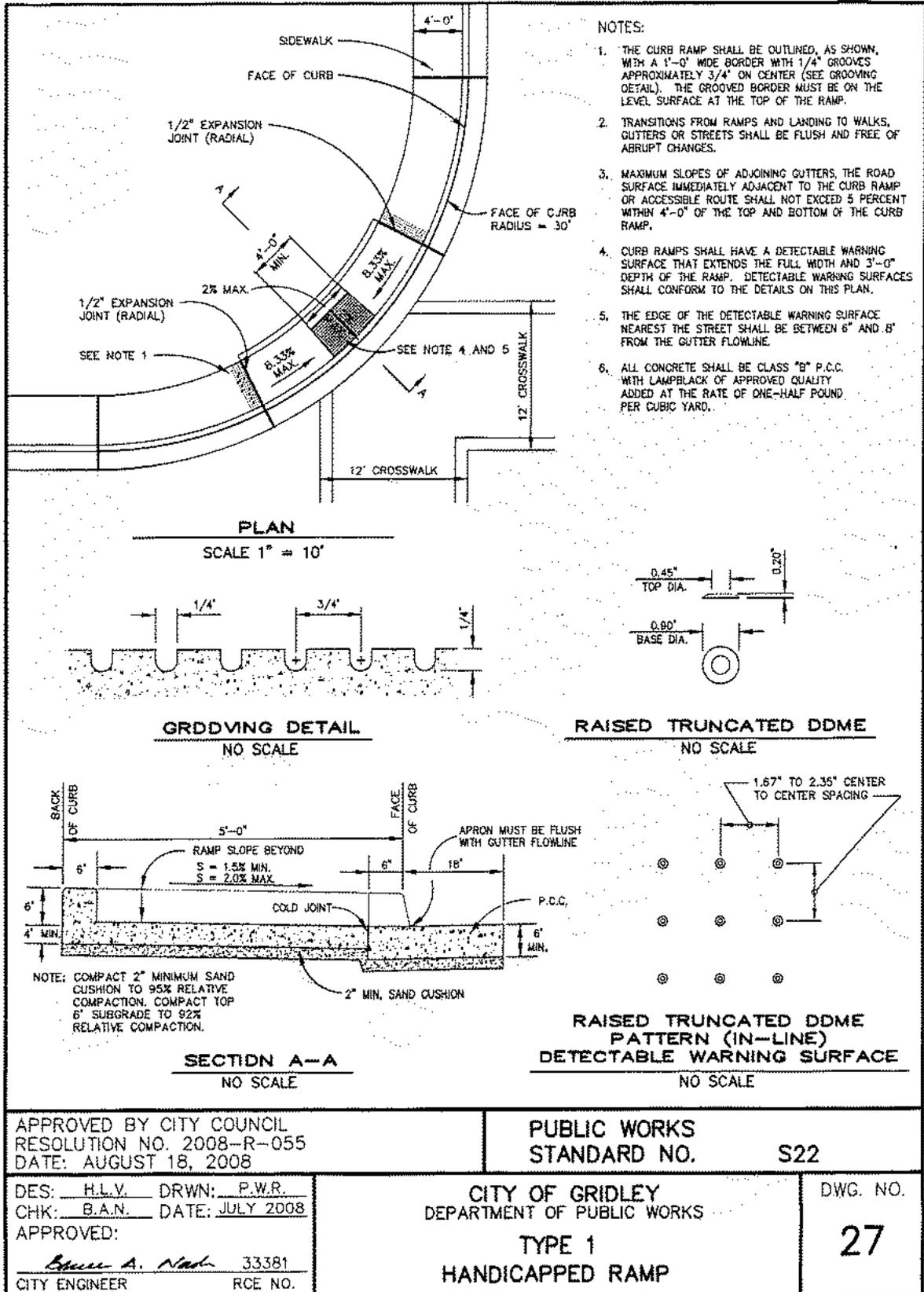
SCALE: 1" = 20'

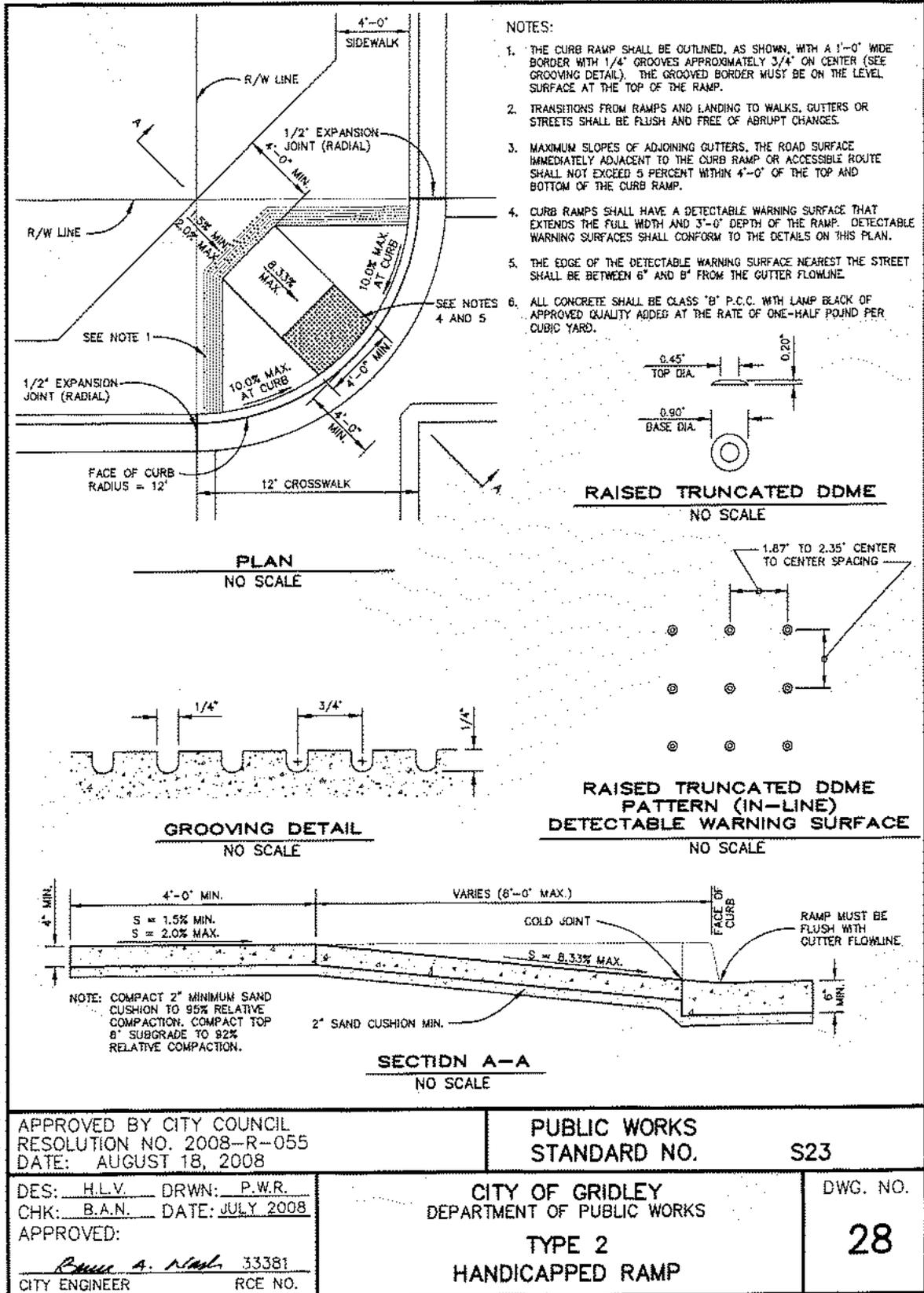
APPROVED BY CITY COUNCIL RESOLUTION NO. 50 DATE: SEPTEMBER 16, 1991		PUBLIC WORKS STANDARD NO S18	
DES: _____	DWN: _____	CITY OF GRIDLEY DEPARTMENT OF PUBLIC WORKS	
CHK: _____	DATE: _____	DWG. NO. <b>23</b>	
APPROVED: <i>Ray D. Row</i> CITY ENGINEER		RCE NO. 18036	
<b>CURVE "KNUCKLE"</b>			

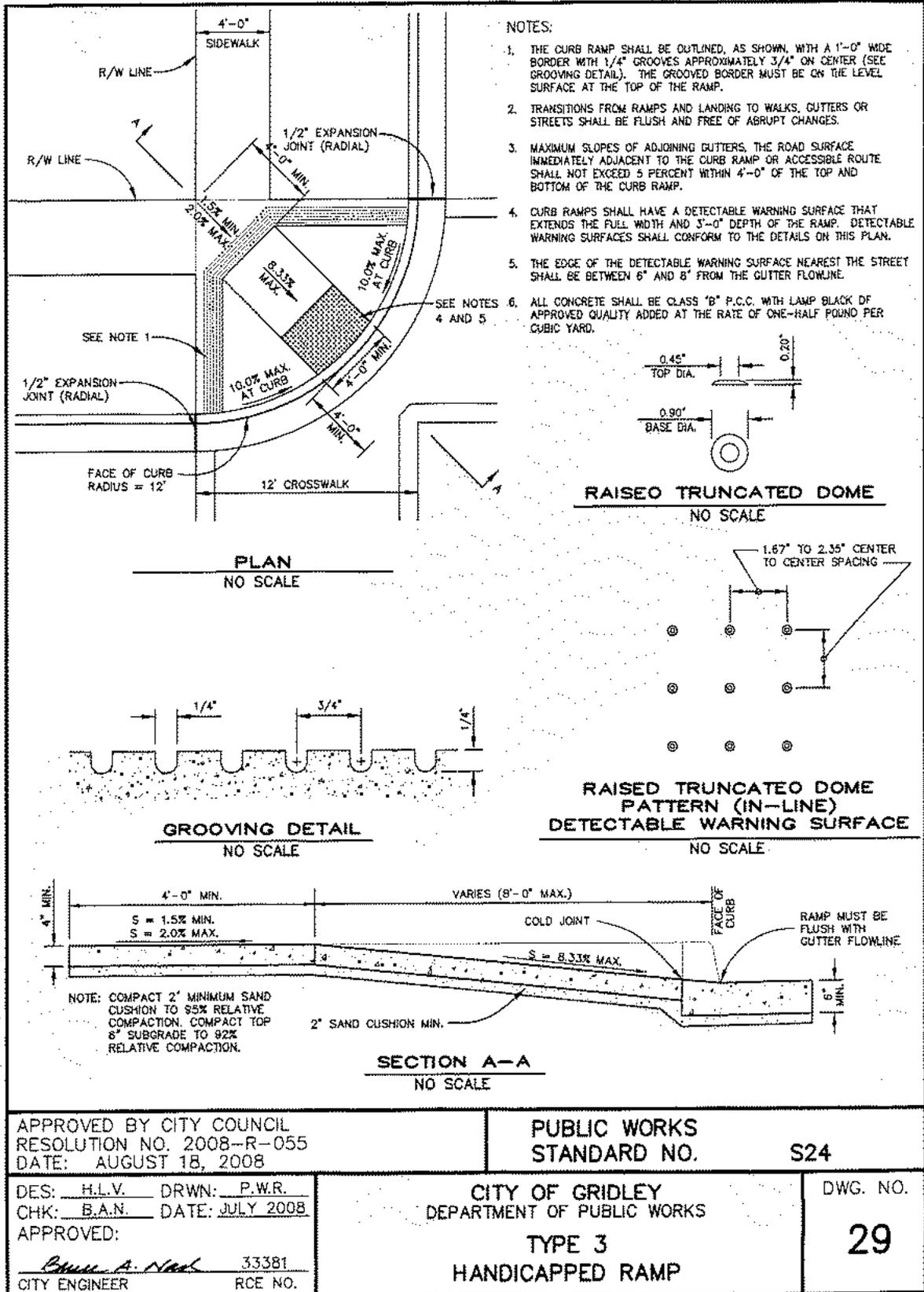


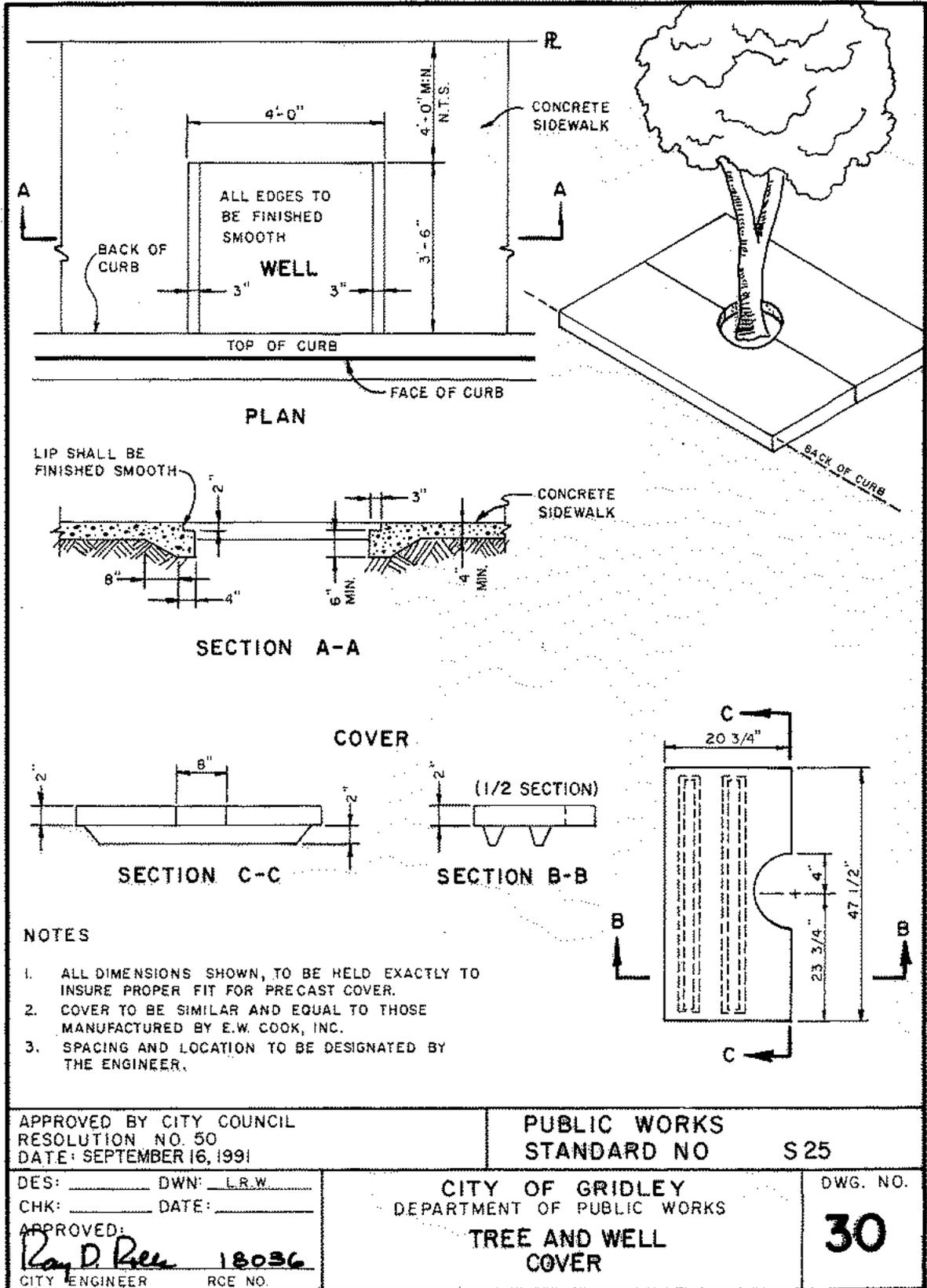


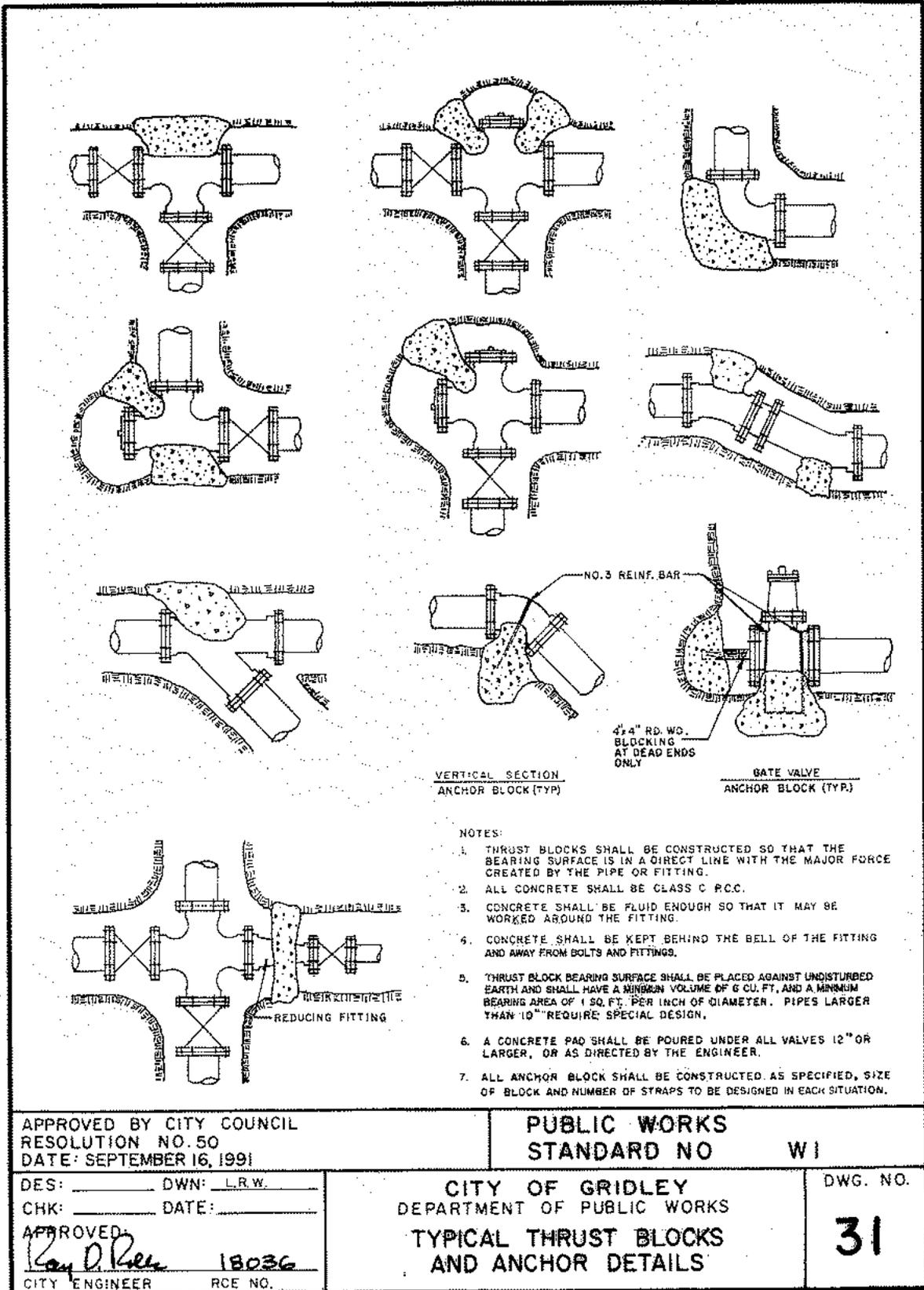


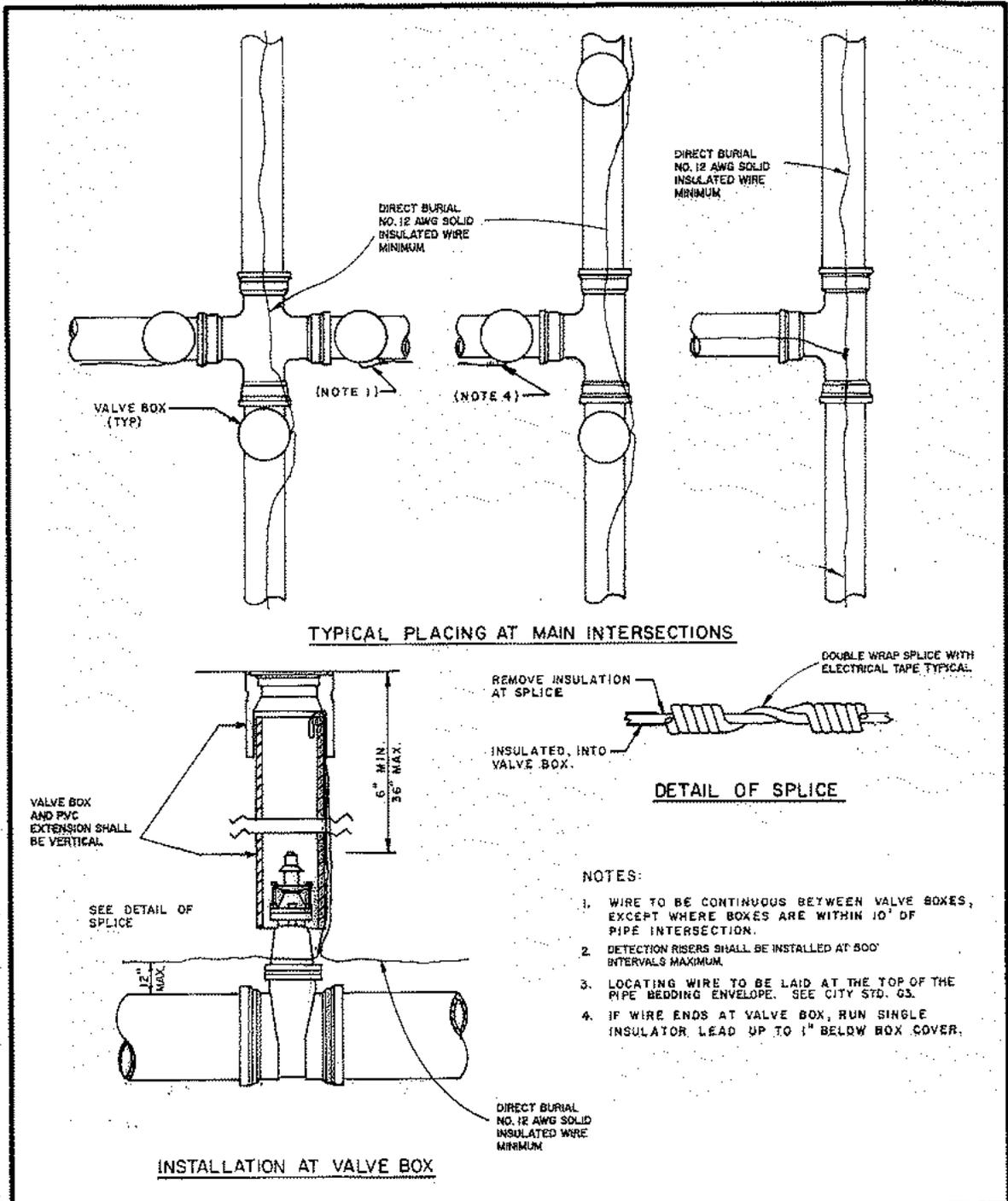




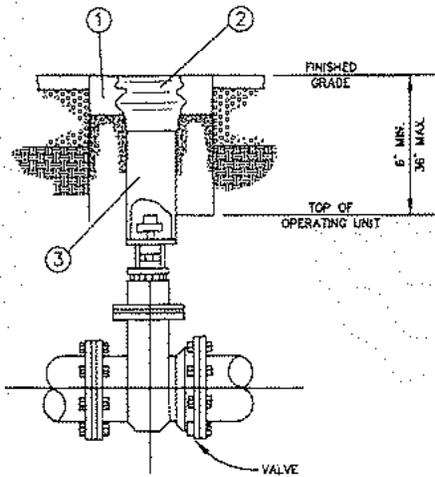






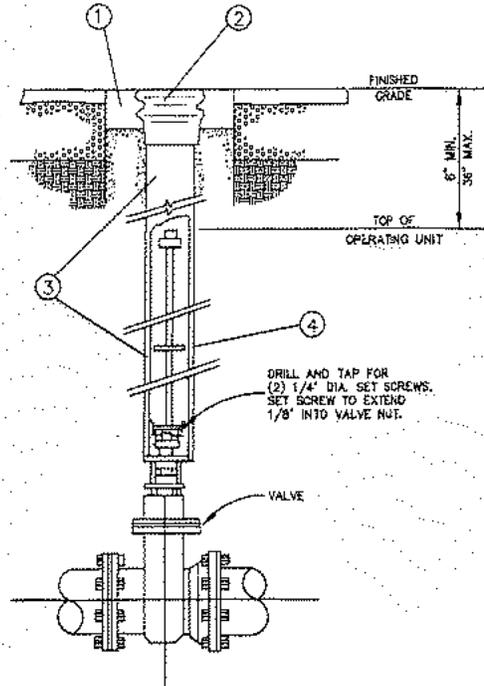


APPROVED BY CITY COUNCIL RESOLUTION NO 50 DATE: SEPTEMBER 16, 1991		PUBLIC WORKS STANDARD NO W2	
DES: _____ DWN: L.R.W.	CHK: _____ DATE: _____	CITY OF GRIDLEY DEPARTMENT OF PUBLIC WORKS <b>LOCATING WIRE FOR NONMETALLIC PIPELINES</b>	DWG. NO.
APPROVED: <i>Ray D. Roll</i> CITY ENGINEER	18036 RCE NO.		<b>32</b>



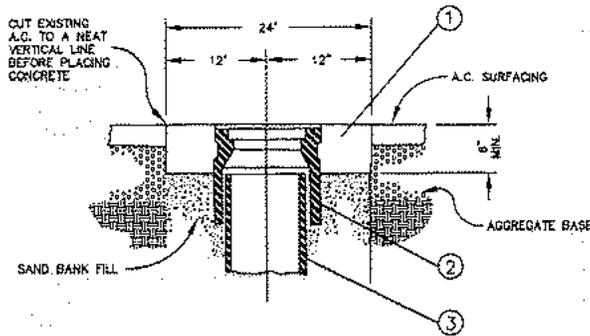
**VALVE COVER DETAIL**

WHERE DISTANCE BETWEEN FINISHED GRADE AND TOP OF OPERATING NUT IS 36\"/>



**OPERATING NUT EXTENSION DETAIL**

REQUIRED WHERE DISTANCE BETWEEN FINISHED GRADE AND TOP OF OPERATING NUT EXCEEDS 36\"/>



**VALVE COVER ADJUSTMENT**

**NOTES**

- ① 24" DIA. x 6" CONCRETE COLLAR.
- ② VALVE BOX COVER—BROOKS PRODUCTS (3-RT), CHRISTY G5, BES G5 OR EQUAL.
- ③ 8" I.D. PVC PIPE EXTENSION SHALL BE VERTICAL.
- ④ OPERATING NUT EXTENSION W/ 7" DIA. PLATE WASHER WELDED TO EXTENSION AT MIDPOINT OF ROD. (MIN. LENGTH OF EXTENSION ROD SHALL BE 24")

APPROVED BY CITY COUNCIL  
RESOLUTION NO. 2004-R-028  
DATE: JULY 6, 2004

**PUBLIC WORKS  
STANDARD NO. W3**

DES: P.W.R. DRWN: P.W.R.  
CHK: H.L.V. DATE: JUNE, 2004  
APPROVED:

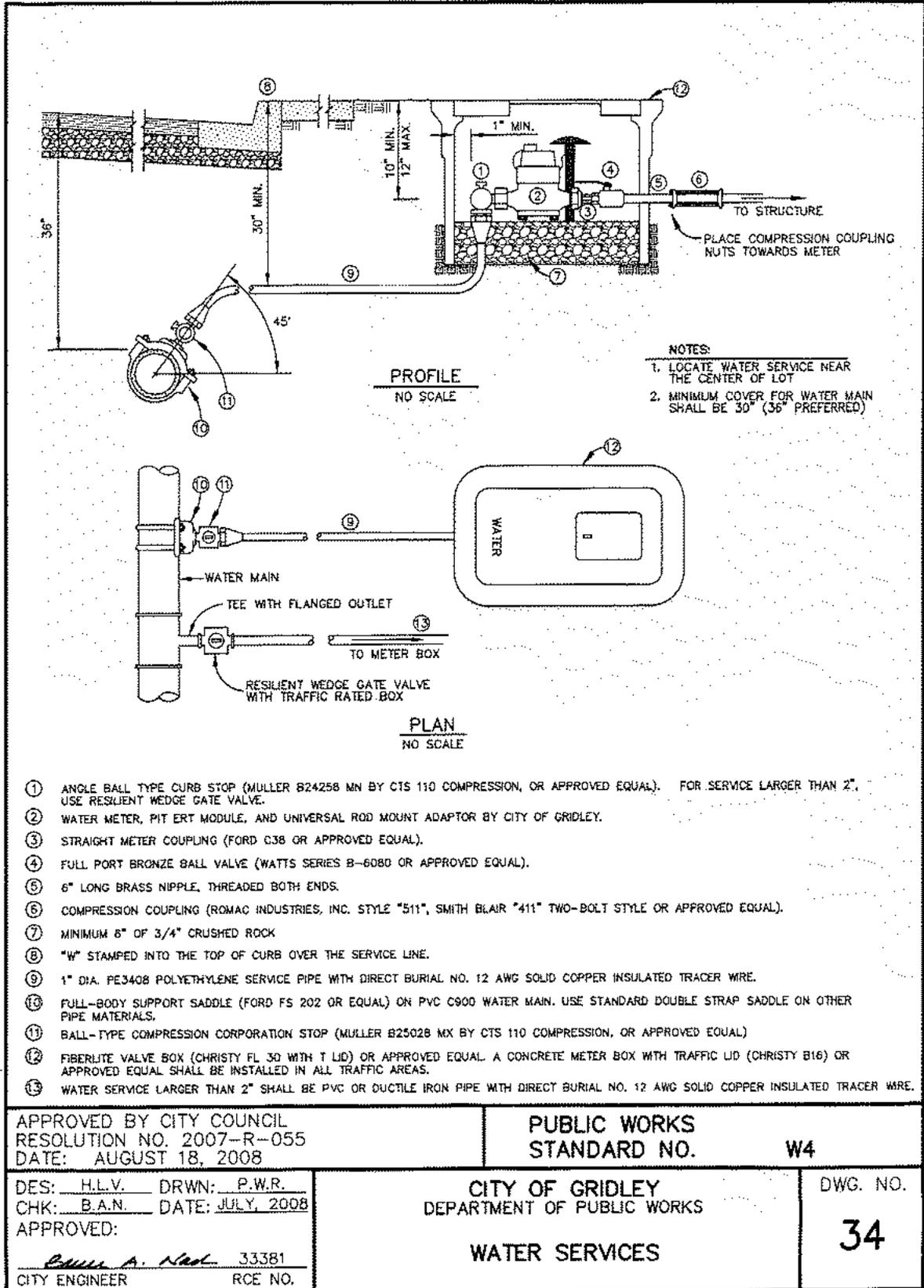
**CITY OF GRIDLEY  
DEPARTMENT OF PUBLIC WORKS**

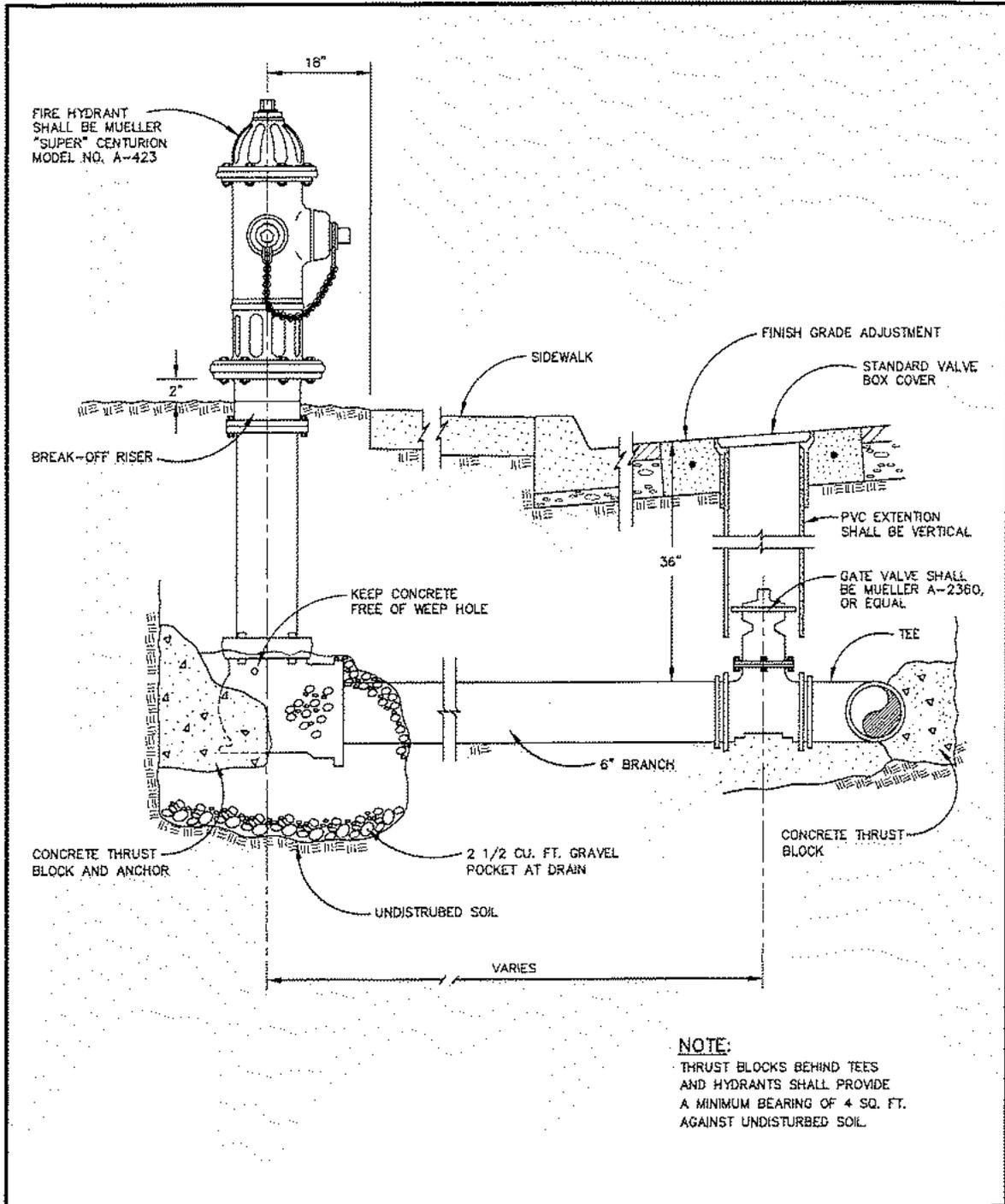
DWG. NO.

*Ernie A. Nash* 33381  
CITY ENGINEER RCE NO.

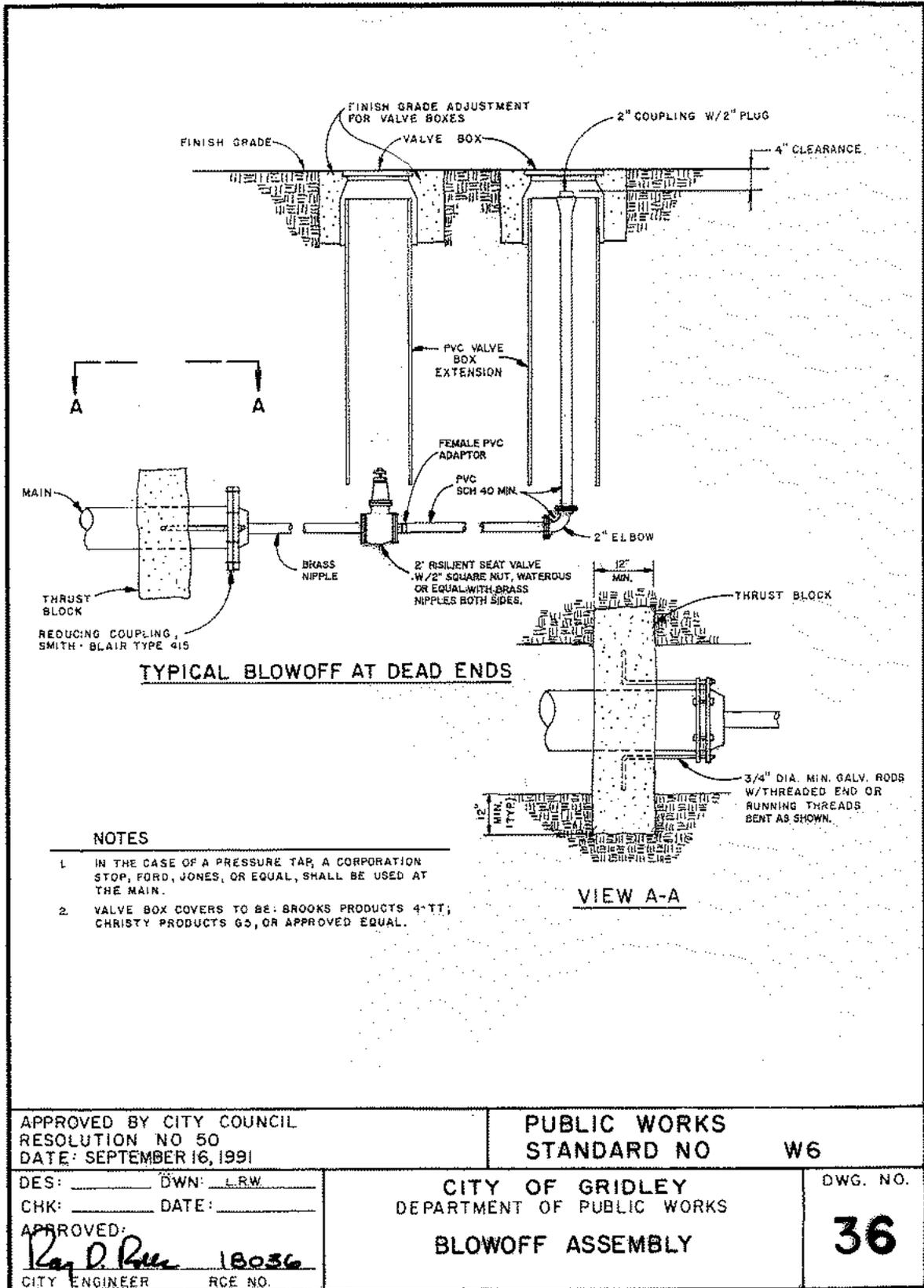
**VALVE COVER  
INSTALLATION**

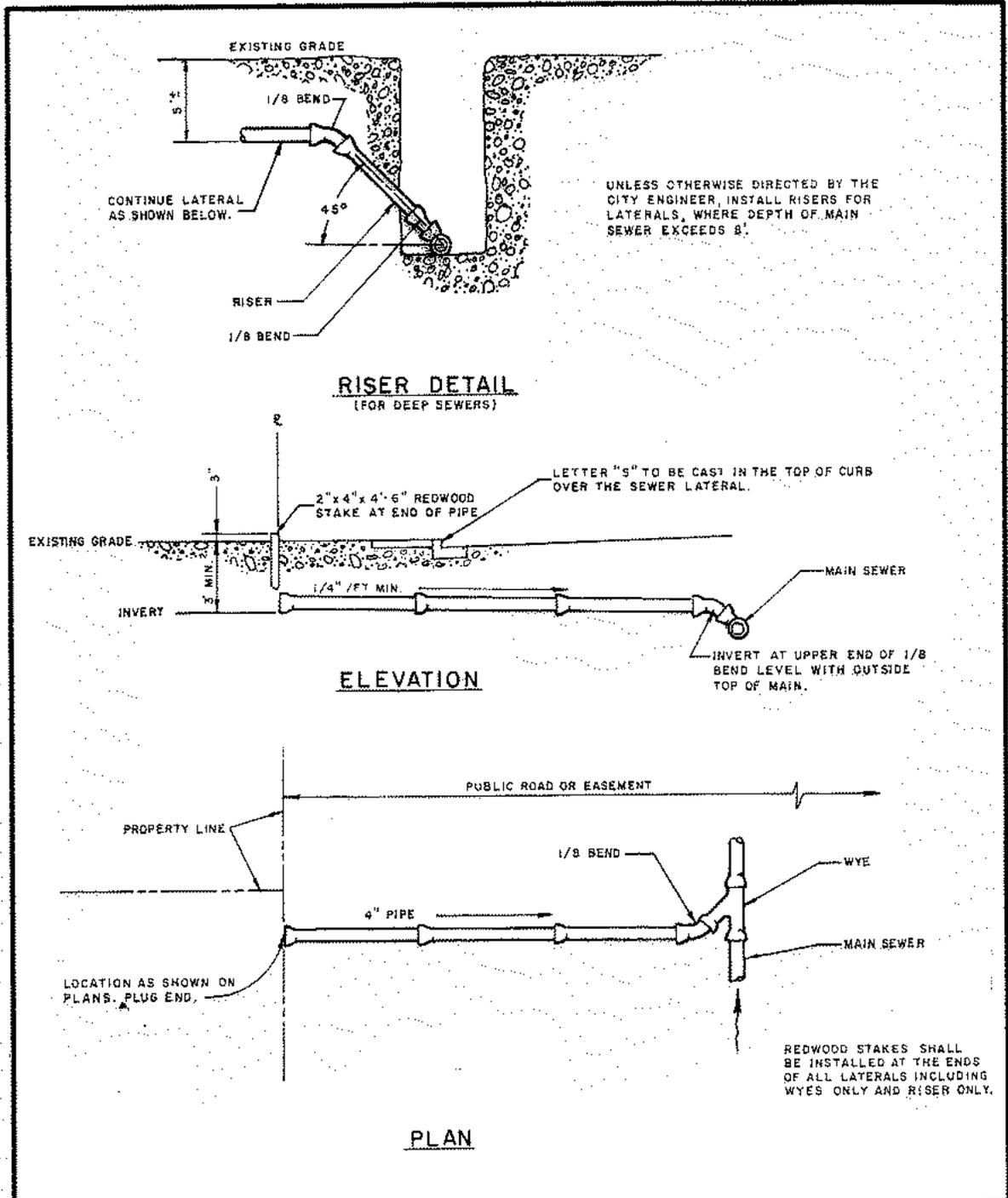
**33**



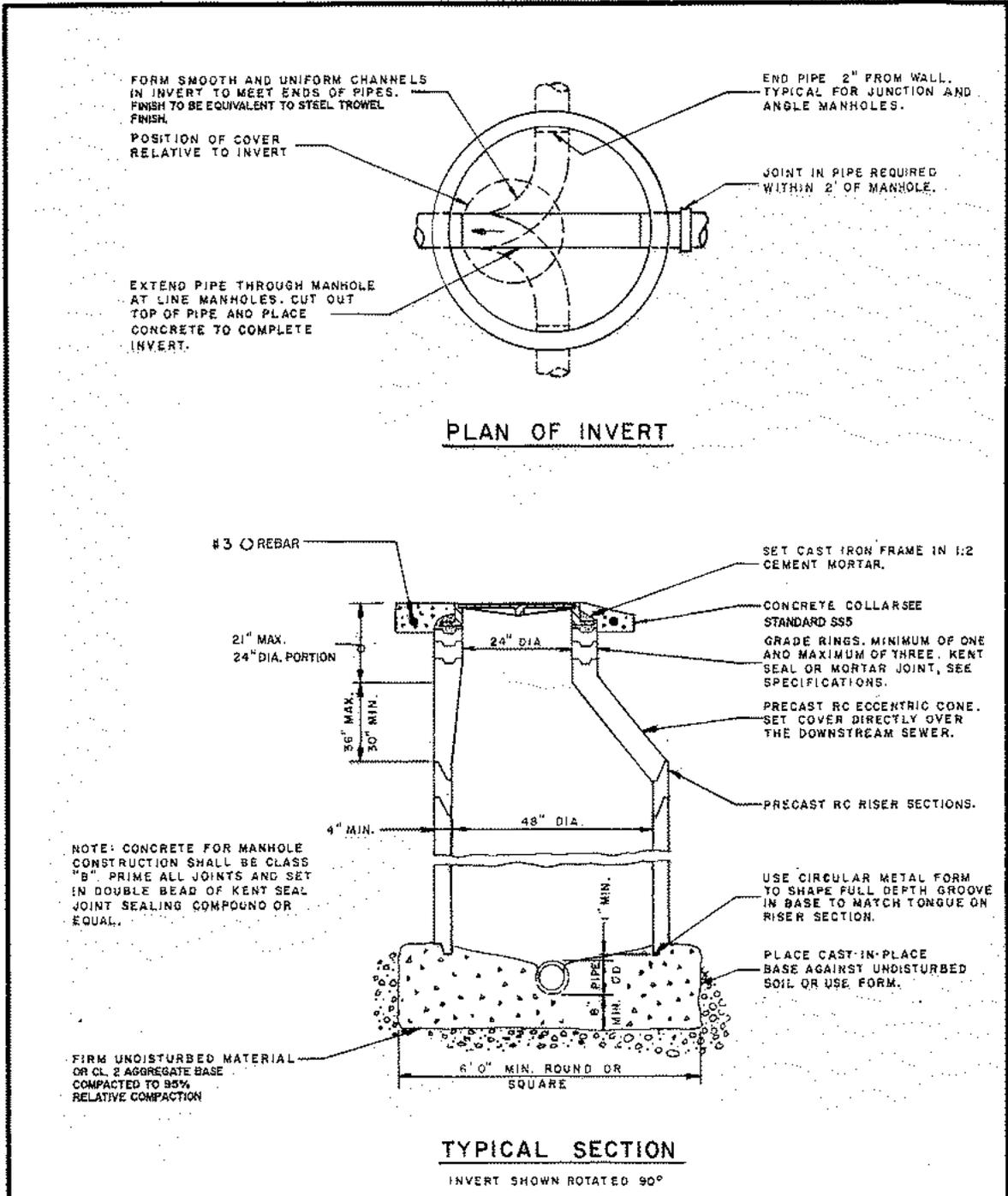


APPROVED BY CITY COUNCIL RESOLUTION NO. 2007-R-055 DATE: AUGUST 18, 2008		PUBLIC WORKS STANDARD NO. W5		
DES: H.L.V.	DRWN: P.W.R.	CITY OF GRIDLEY DEPARTMENT OF PUBLIC WORKS STANDARD FIRE HYDRANT INSTALLATION		
CHK: B.A.N.	DATE: JULY, 2008			DWG. NO.
APPROVED: <i>Bruce A. Nant</i> 33381 CITY ENGINEER RCE NO.				35

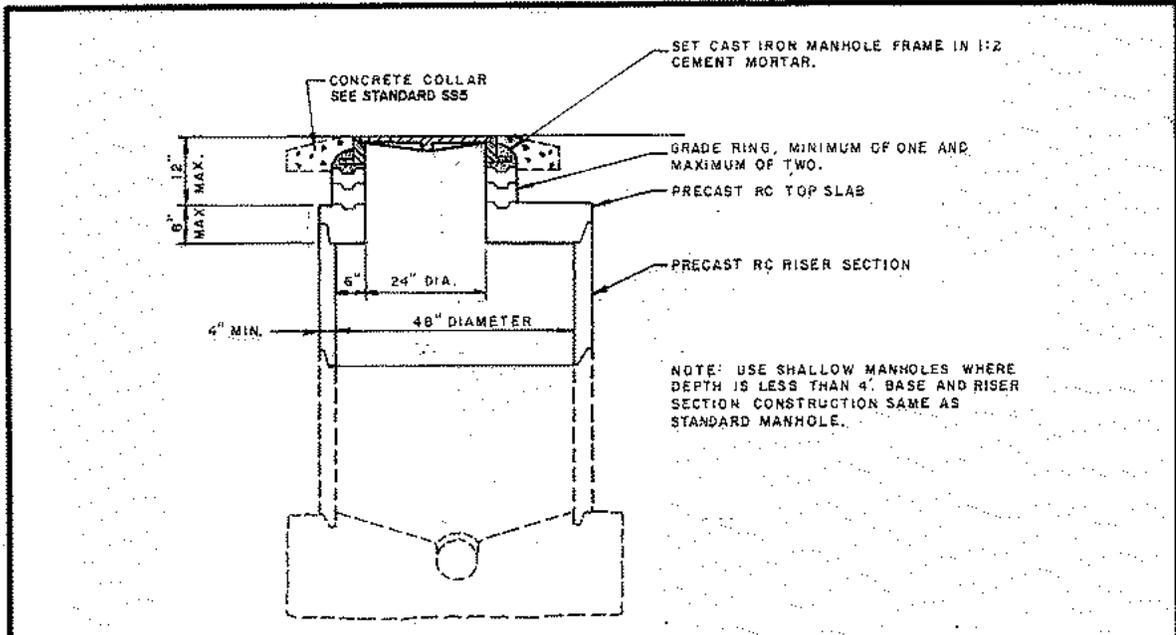




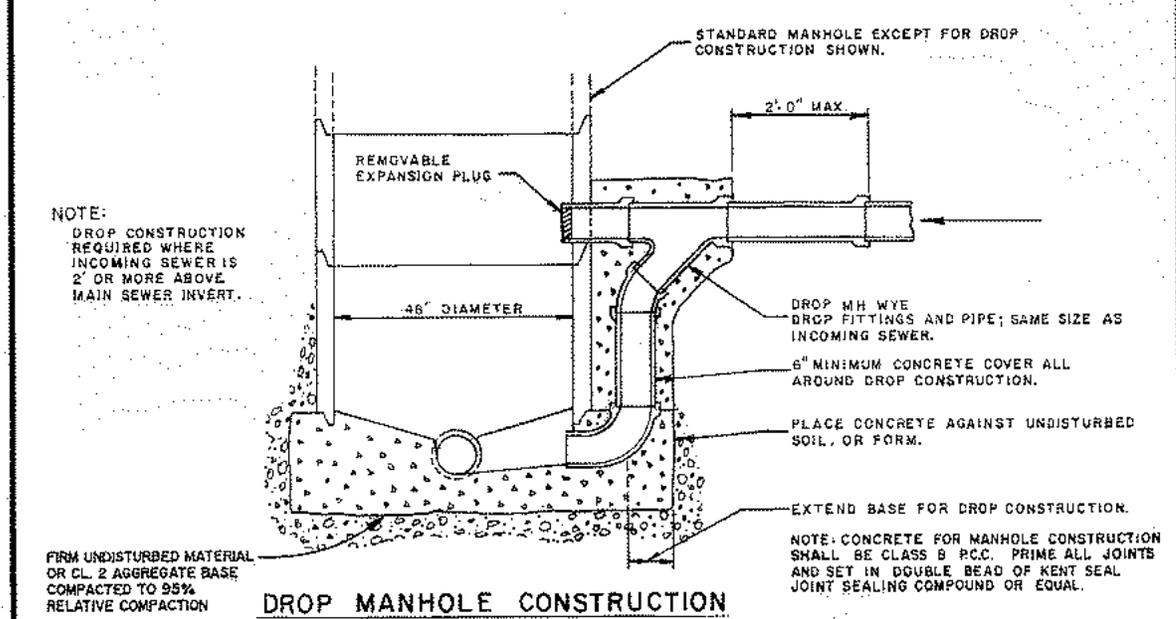
APPROVED BY CITY COUNCIL RESOLUTION NO. 50 DATE: SEPTEMBER 16, 1991		PUBLIC WORKS STANDARD NO SSI	
DES: _____	DWN: _____	L.R.W. _____	DWG. NO.
CHK: _____	DATE: _____		<b>37</b>
APPROVED: <i>Ray D. Bell</i> CITY ENGINEER		18036 RCE NO.	
CITY OF GRIDLEY DEPARTMENT OF PUBLIC WORKS TYPICAL LATERAL SEWER DETAILS			



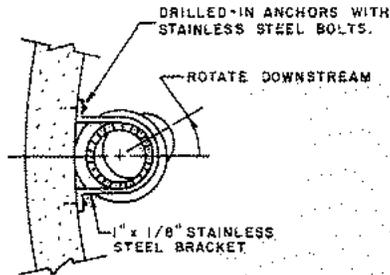
APPROVED BY CITY COUNCIL RESOLUTION NO 50 DATE: SEPTEMBER 16, 1991		PUBLIC WORKS STANDARD NO SS2	
DES: _____ DWN: L.R.W.	CHK: _____ DATE: _____	CITY OF GRIDLEY DEPARTMENT OF PUBLIC WORKS	
APPROVED: <i>Ray D. Rose</i> 18036 CITY ENGINEER RCE NO.		STANDARD MANHOLE	
		DWG. NO. <b>38</b>	



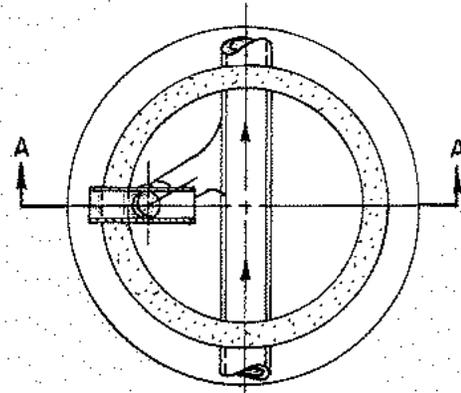
**SHALLOW MANHOLE**



APPROVED BY CITY COUNCIL RESOLUTION NO. 50 DATE: SEPTEMBER 16, 1991		PUBLIC WORKS STANDARD NO SS3	
DES: _____ DWN: _____ L.R.W. _____	CHK: _____ DATE: _____	CITY OF GRIDLEY DEPARTMENT OF PUBLIC WORKS	
APPROVED: <i>Ray D. Rolan</i> 18036 CITY ENGINEER RCE NO.		SHALLOW MANHOLE AND DROP MANHOLE CONSTRUCTION	
		DWG. NO. <b>39</b>	



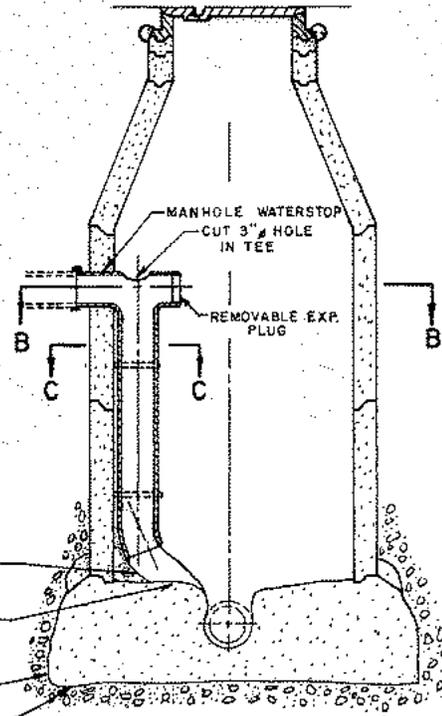
**SECTION C-C**



**SECTION B-B**

**NOTES:**

1. INSIDE DROP MANHOLES ALLOWED WHEN THE GRADE DIFFERENCE IS 2' OR MORE ON EXISTING FACILITIES OR WHEN DIRECTED BY THE ENGINEER.
2. THIS TYPE DROP MANHOLE CONSTRUCTION MAY BE UTILIZED ONLY WHEN 6" OR SMALLER PIPE IS USED. VERTICAL PIPE SHALL BE 6" FOR BOTH 6" AND 8" INCOMING LINES. 4" VERTICAL PIPE MAY BE USED FROM 4" INCOMING LINES.
3. DUCTILE IRON PIPE OR PVC SHALL BE USED IN THE DROP SECTION OF THE MANHOLE.
4. A FLEXIBLE COUPLING SHALL BE USED ON THE JOINT IMMEDIATELY OUTSIDE THE MANHOLE.
5. A MINIMUM OF TWO STAINLESS STEEL BRACKETS SHALL BE USED PER MANHOLE INSTALLATION.
6. CONCRETE FOR MANHOLE CONSTRUCTION SHALL BE CLASS B R.C.C.
7. PRIME ALL JOINTS AND SET IN DOUBLE BEAD OF KENT SEAL JOINT SEALING COMPOUND OR EQUAL.



**SECTION A-A**

PLACE CONCRETE AGAINST UNDISTURBED SOIL, OR FORM.

FIRM UNDISTURBED MATERIAL OR CL. 2 AGGREGATE BASE COMPACTED TO 95% RELATIVE COMPACTION

APPROVED BY CITY COUNCIL  
RESOLUTION NO 50  
DATE: SEPTEMBER 16, 1991

**PUBLIC WORKS  
STANDARD NO SS 4**

DES: \_\_\_\_\_ DWN: L.R.W.

CHK: \_\_\_\_\_ DATE: \_\_\_\_\_

APPROVED:

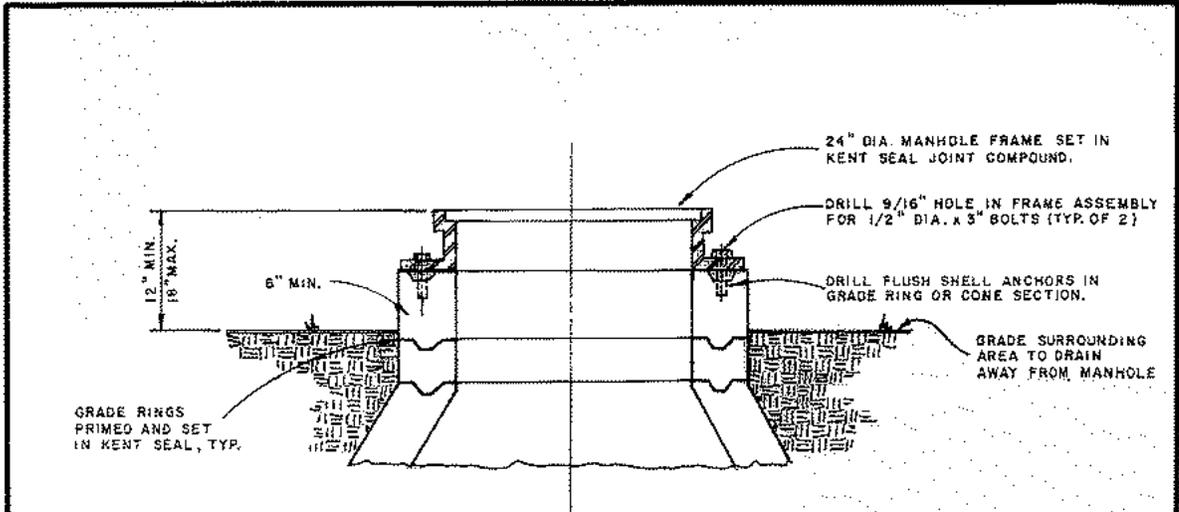
*R. D. Bell* 18036  
CITY ENGINEER RCE NO.

**CITY OF GRIDLEY  
DEPARTMENT OF PUBLIC WORKS**

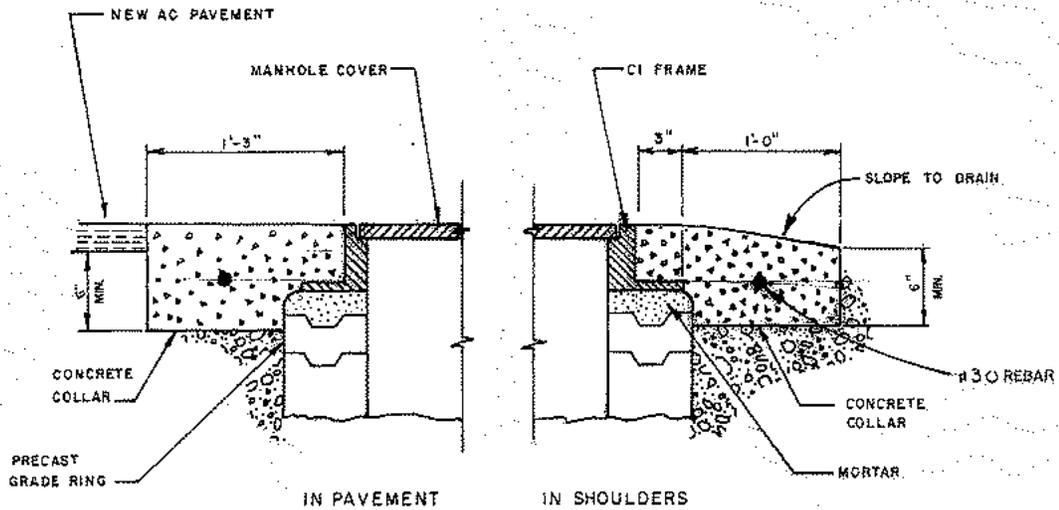
**STANDARD INSIDE  
DROP MANHOLE**

DWG. NO.

**40**



**MANHOLES IN UNIMPROVED LOCATIONS**



NOTE: ALL CONCRETE SHALL BE CLASS B P.C.C. WITH 1/2 LB. PER CY LAMPBLACK

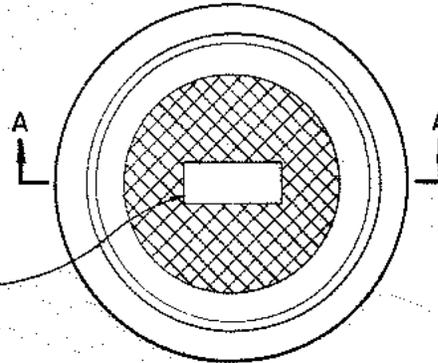
**COVER SETTING DETAIL FOR MANHOLES IN ROADWAYS**

APPROVED BY CITY COUNCIL RESOLUTION NO 50 DATE: SEPTEMBER 16, 1991		PUBLIC WORKS STANDARD NO SS5	
DES: _____ DWN: _____ L.R.W. _____	CHK: _____ DATE: _____	CITY OF GRIDLEY DEPARTMENT OF PUBLIC WORKS	
APPROVED: <i>Ray D. R...</i> 18036 CITY ENGINEER RCE NO.		STANDARD SEWER SYSTEM DETAILS	
		DWG. NO. <b>41</b>	

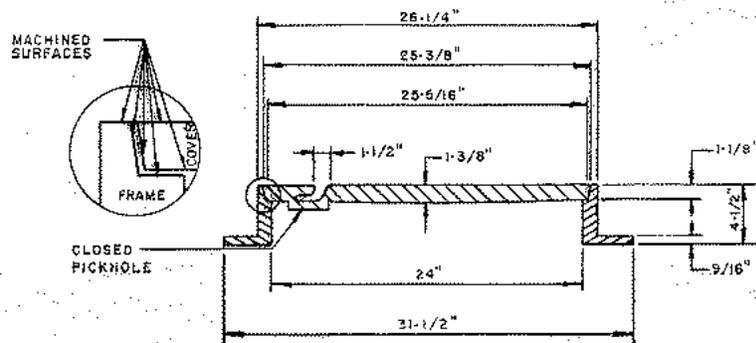
ACCEPTABLE  
MANUFACTURERS

PHOENIX P-1090  
SBF 1900  
D & L A-1024

APPROPRIATE  
UTILITY LABEL:  
SANITARY SEWER OR  
STORM DRAIN.



PLAN



SECTION A

COVER 130 LBS. (MIN.)  
FRAME 138 LBS. (MIN.)

NOTES:

1. FRAME AND COVER FULLY MACHINED ON SURFACES AS SHOWN FOR PERFECT NO-ROCK FIT.
2. STANDARD COVER MARKINGS AVAILABLE: "SANITARY SEWER" OR "STORM DRAIN". CASTING SHALL BE ORDERED WITH APPROPRIATE MARKING.
3. CASTINGS SHALL BE DIPPED IN ASPHALT PAINT.
4. WATERTIGHT COVER AVAILABLE WITH R/G DESIGNATION.
5. ALL PARTS OF ACCEPTABLE COVER ASSEMBLIES ARE INTERCHANGEABLE.
6. MANHOLE COVER SHALL BE SOLID LID WITH BLIND PICKHOLE TYPICAL.

APPROVED BY CITY COUNCIL  
RESOLUTION NO. 50  
DATE: SEPTEMBER 16, 1991

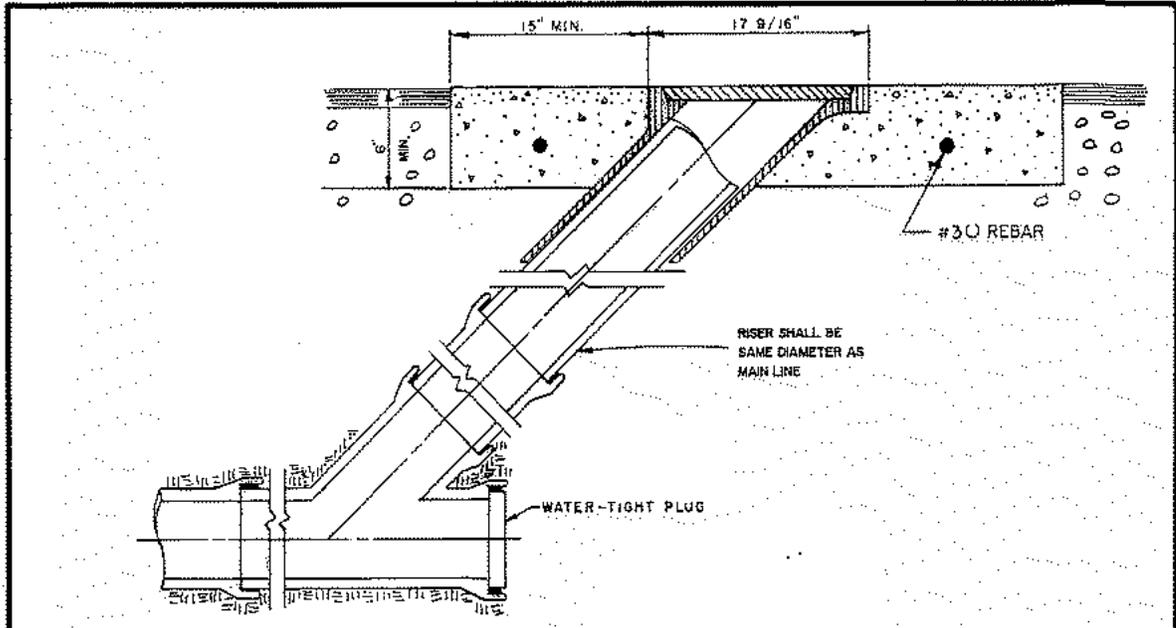
PUBLIC WORKS  
STANDARD NO SS6

DES: \_\_\_\_\_ DWN: L.R.W.  
CHK: \_\_\_\_\_ DATE: \_\_\_\_\_  
APPROVED:  
*Ray D. Rice* 18036  
CITY ENGINEER RCE NO.

CITY OF GRIDLEY  
DEPARTMENT OF PUBLIC WORKS  
24" MANHOLE FRAME  
& COVER ASSEMBLY

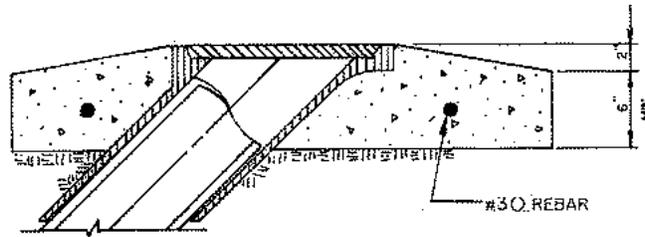
DWG. NO.

42



**PAVED ALLEYS  
AND SHOULDERS**

	6" MAIN	8" MAIN
PHOENIX	P-7004	P-7003
SBF	1249	
D & L	H-6521	H-6530



**UNPAVED ALLEYS  
AND SHOULDERS**

**NOTES:**

1. ALL WORK TO BE DONE AND ALL MATERIALS SUPPLIED SHALL CONFORM TO THE GRIDLEY PUBLIC WORKS CONSTRUCTION STANDARDS.
2. EIGHTH (1/8) BEND MAY BE USED IN PLACE OF WYE WITH THE APPROVAL OF THE CITY ENGINEER.
3. ALL CONCRETE SHALL BE CLASS B RCC.
4. CONCRETE COLLAR AROUND STREET CASTING SHALL BE OVAL IN SHAPE AS IN CASTING.

APPROVED BY CITY COUNCIL  
RESOLUTION NO 50  
DATE: SEPTEMBER 16, 1991

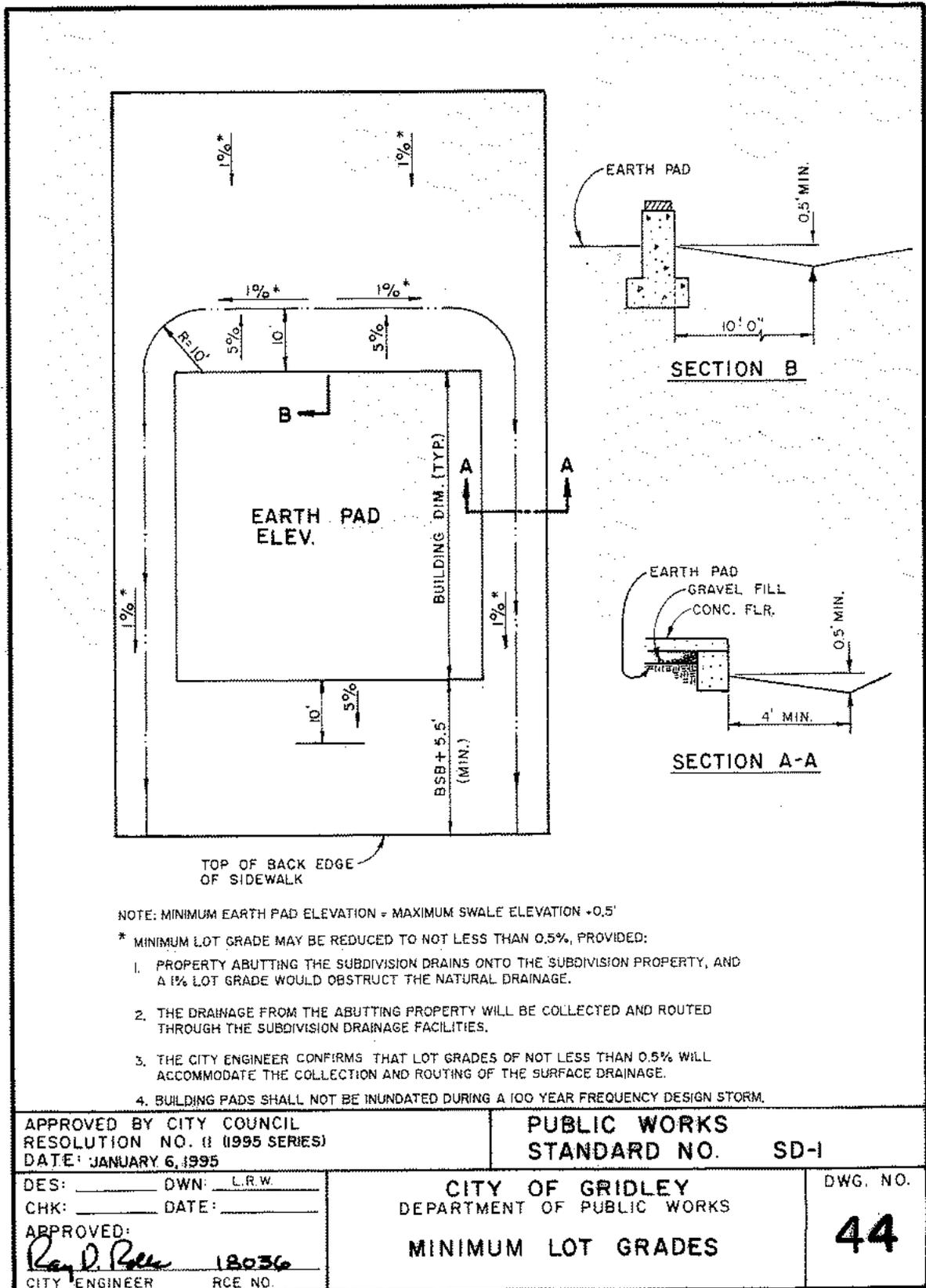
PUBLIC WORKS  
STANDARD NO SS7

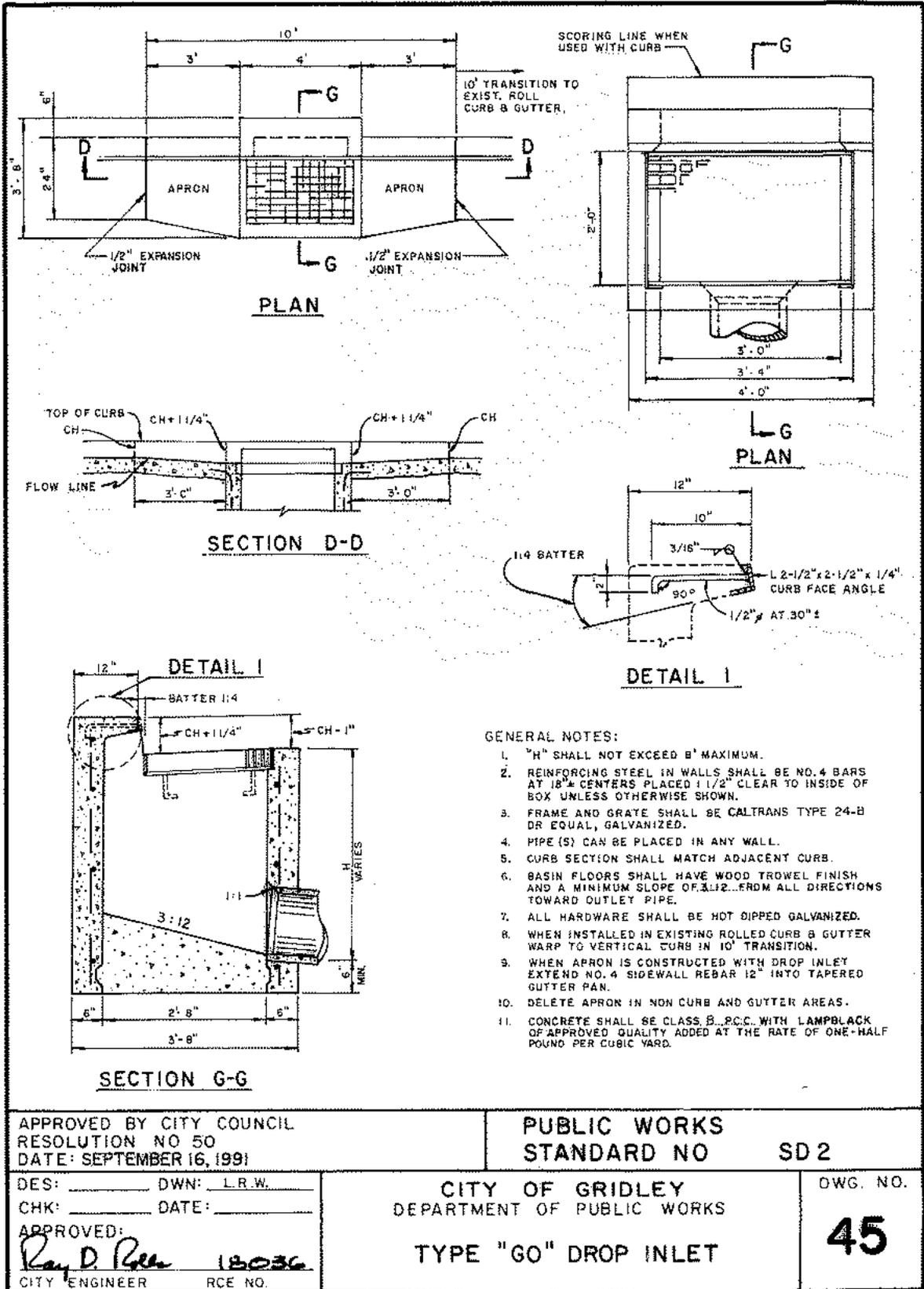
DES: \_\_\_\_\_ DWN: \_\_\_\_\_ L.R.W. \_\_\_\_\_  
CHK: \_\_\_\_\_ DATE: \_\_\_\_\_  
APPROVED:  
*Ray D. Pella* 18036  
CITY ENGINEER RCE NO.

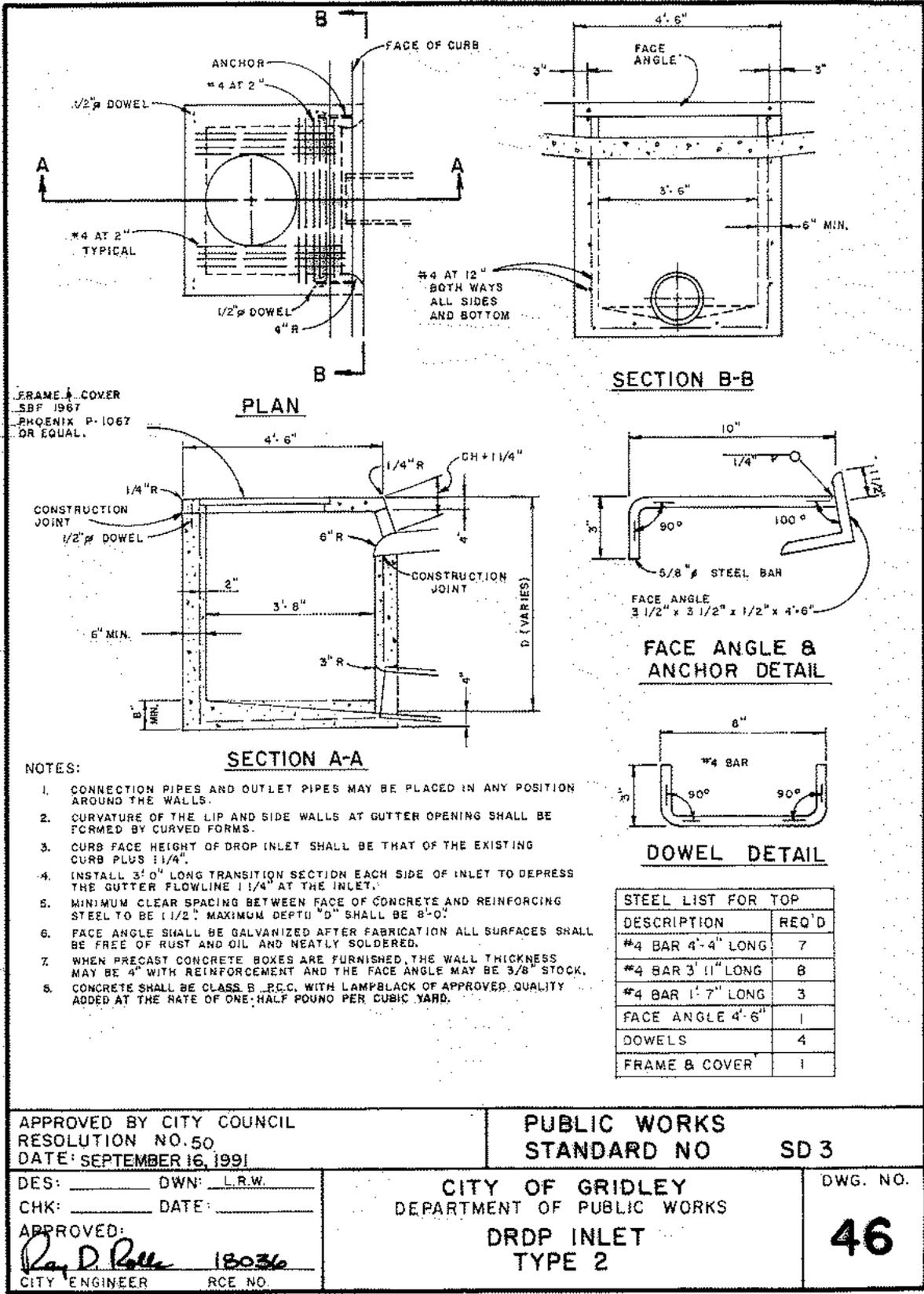
CITY OF GRIDLEY  
DEPARTMENT OF PUBLIC WORKS  
DETAIL OF RODHOLE  
INSTALLATION.

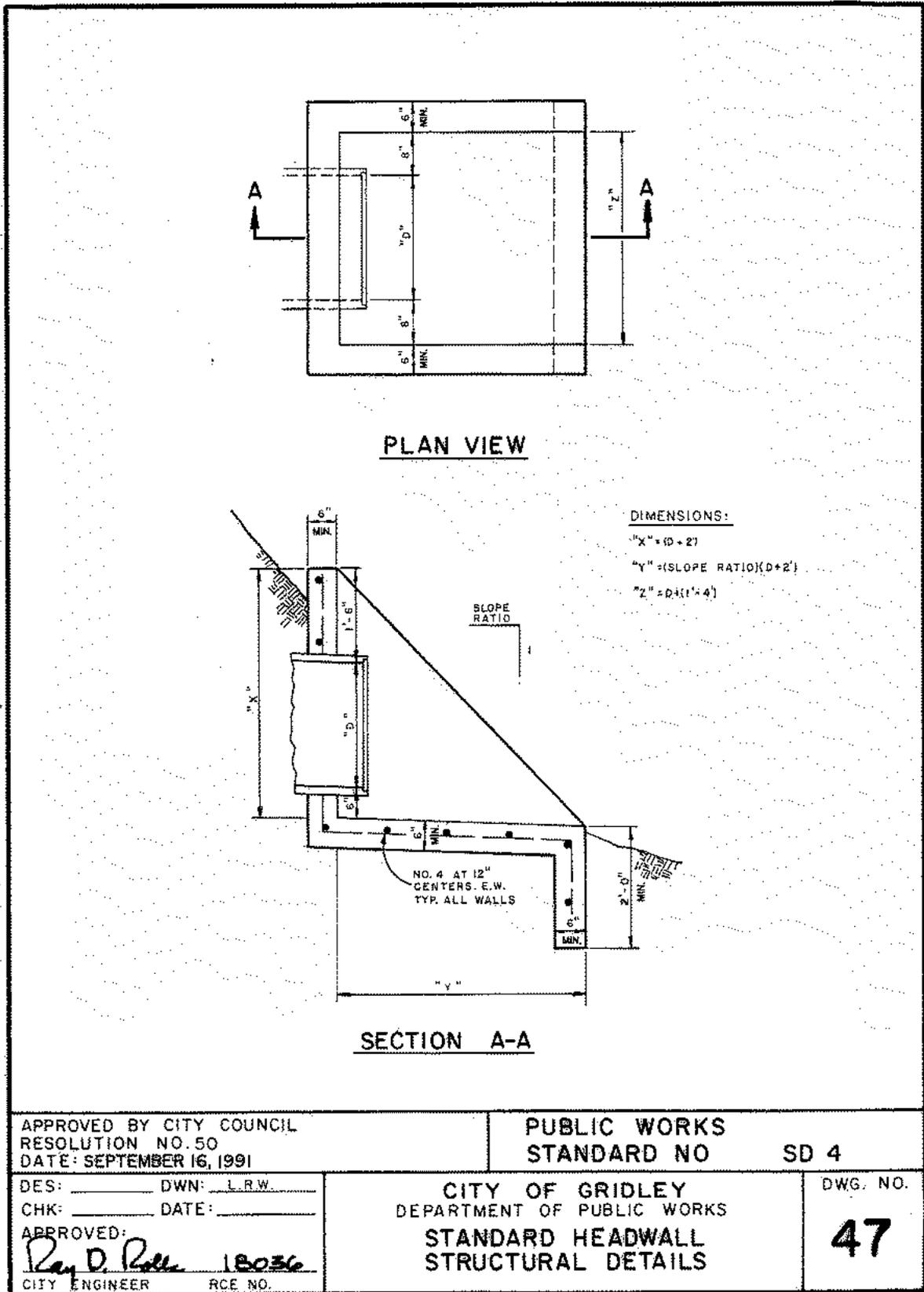
DWG. NO.

**43**

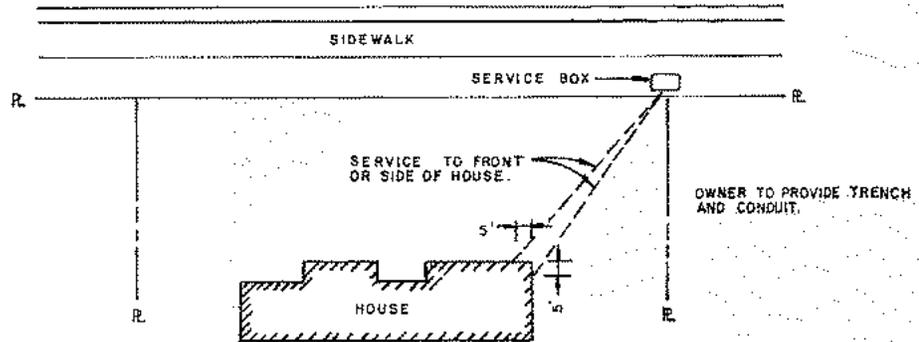






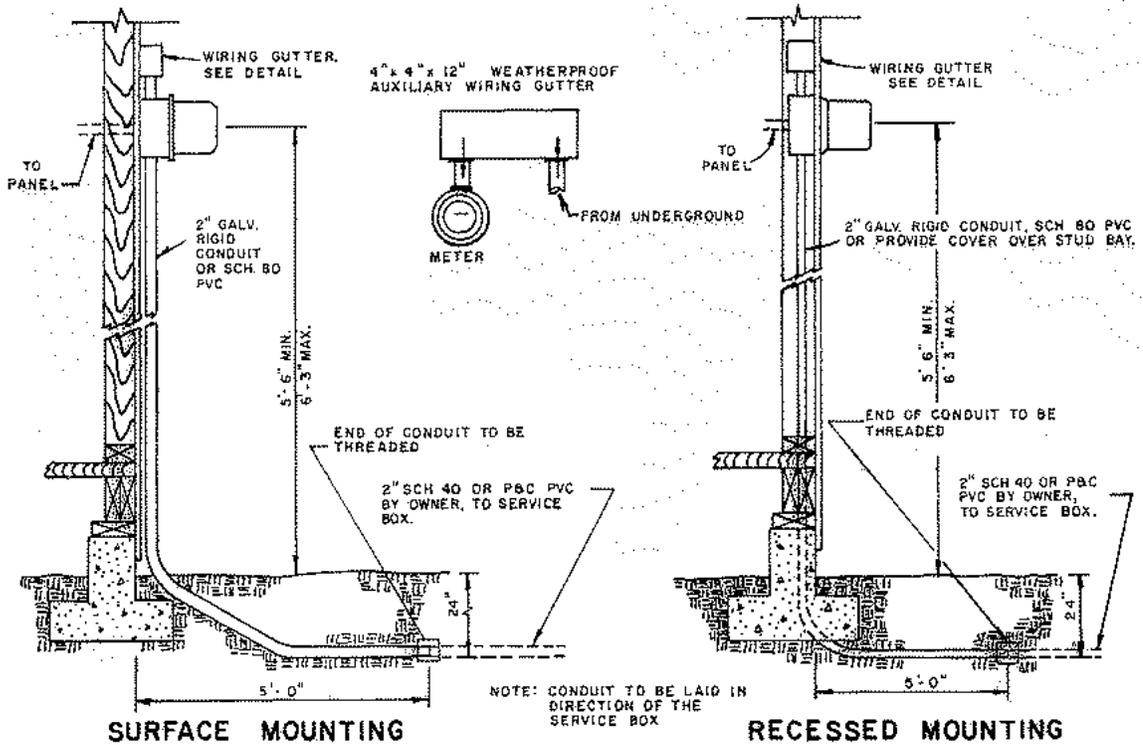


### TYPICAL SERVICE LOCATION



**NOTES:**

1. CITY OF GRIDLEY WILL INFORM OWNER PRIOR TO START OF CONSTRUCTION WHICH CORNER OF THE BUILDING THE SERVICE WILL BE PROVIDED.
2. CITY OF GRIDLEY TO INSTALL SERVICE TO THE CORNER OF THE BUILDING IN TRENCH AND CONDUIT PROVIDED BY OWNER.
3. BUILDING SWEEP SHALL BE DIRECTED TOWARD SERVICE BOX.
4. ALL CONDUIT INSTALLED BELOW GROUND SHALL BE PLASTIC.



APPROVED BY CITY COUNCIL RESOLUTION NO. 50 DATE: SEPTEMBER 16, 1991	<b>PUBLIC WORKS STANDARD NO E1</b>	
DES: _____ DWN: L.R.W. CHK: _____ DATE: _____ APPROVED: <i>Ray D. Pull</i> 18036 CITY ENGINEER RCE NO.	<b>CITY OF GRIDLEY DEPARTMENT OF PUBLIC WORKS TYPICAL SERVICE &amp; METER LOCATION</b>	DWG. NO. <b>48</b>

SECONDARY OR SERVICE RISER REQUIREMENTS

- 1-10'-0" GALV. RISER (2" OR 4")
- 1-30" RADIUS SWEEP (2" OR 4")
- 6-1/2" x 4" LAG SCREWS
- 1-GALV. COUPLING (2" OR 4")
- 1-PVG-GALV. PIPE ADAPTER
- 25'-SERVICE WIRE COILED ABOVE RISER TIED TO POLE
- 3-GALV. STRAPS PREFORMED--STRAPS SHALL BE HOT DIP GALVANIZED, 1/4" THICK BY 1 1/4" WIDE, ONE 9/16" DIAMETER HOLE (AFTER GALV.) AT EACH PRESENT END. ATTACHMENT WILL BE BY GALVANIZED 1/2" x 4" LAG SCREWS AT 3'-0" SPACING ON POLE. NO PLUMBER TAPE.

12 KV RISER REQUIREMENTS

SAME AS ABOVE WITH (4" OR 6") AND 36" MIN. RADIUS AS NOTED BELOW.

MINIMUM SWEEP RADIUS:

SECONDARY CONDUIT = 30"  
PRIMARY CONDUIT = 36"

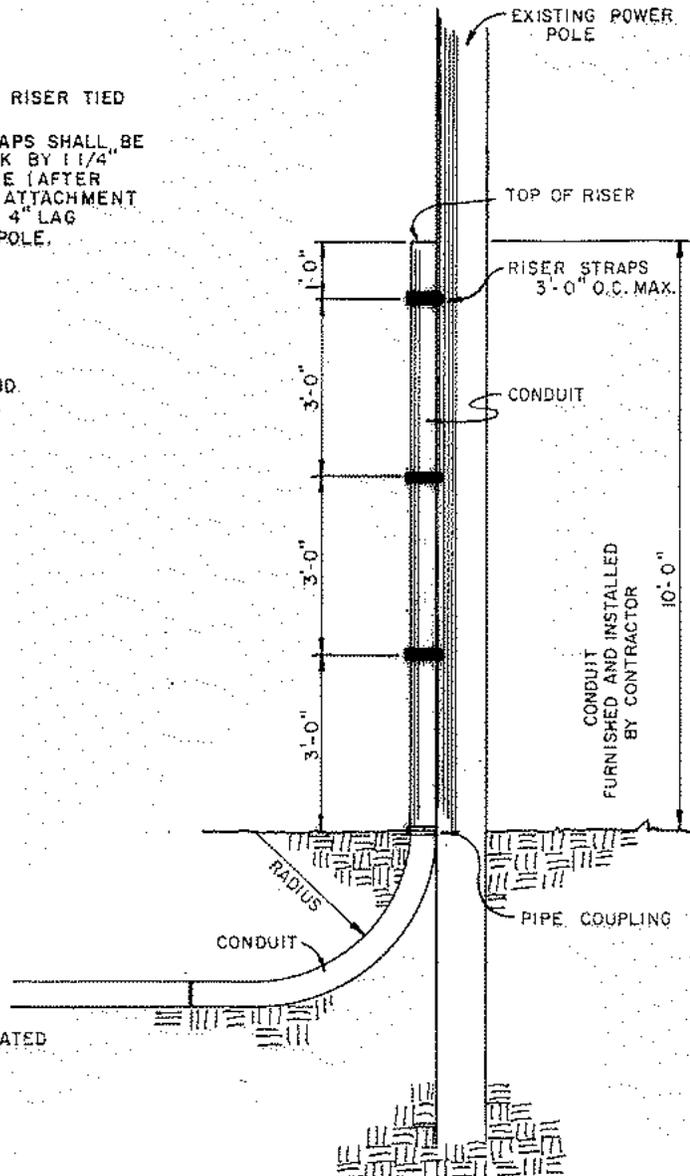
MINIMUM DEPTHS:

SECONDARY CONDUIT DEPTH 24"  
PRIMARY CONDUIT DEPTH 30"  
NOTE: FOR (2) ADJOINING 90° BENDS RADIUS = 36" MIN. FOR (3) ADJOINING 90° BENDS, STEEL SWEEPS WITH RADIUS = 36" MIN. SHALL BE INSTALLED.

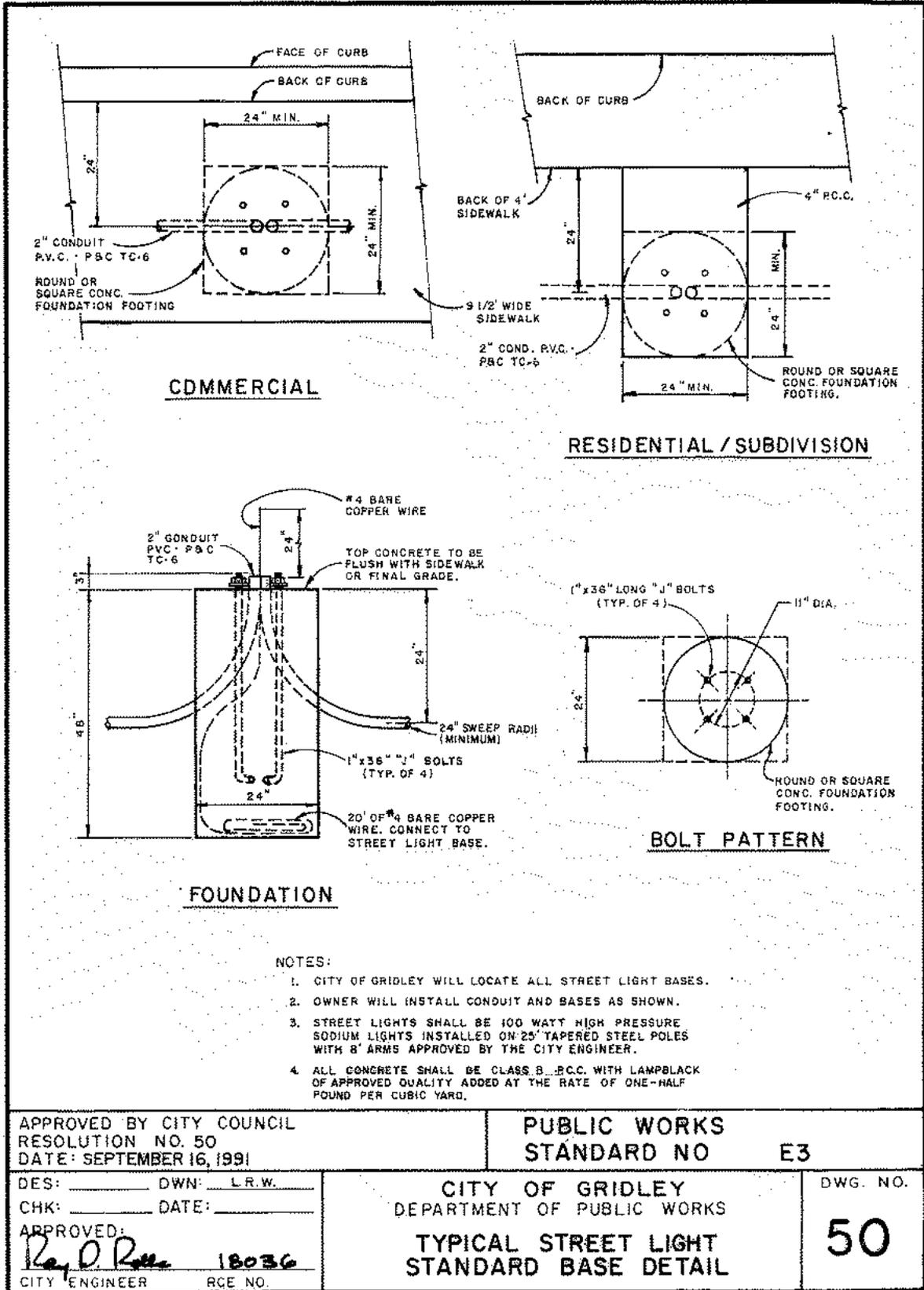
CONDUIT SIZE TO BE INDICATED

STRAP SUPPLIES:

ENGFER IRON WORK  
KIN-LINE  
MAYDWELL HARTZELL  
PURCELL MFG. CO.



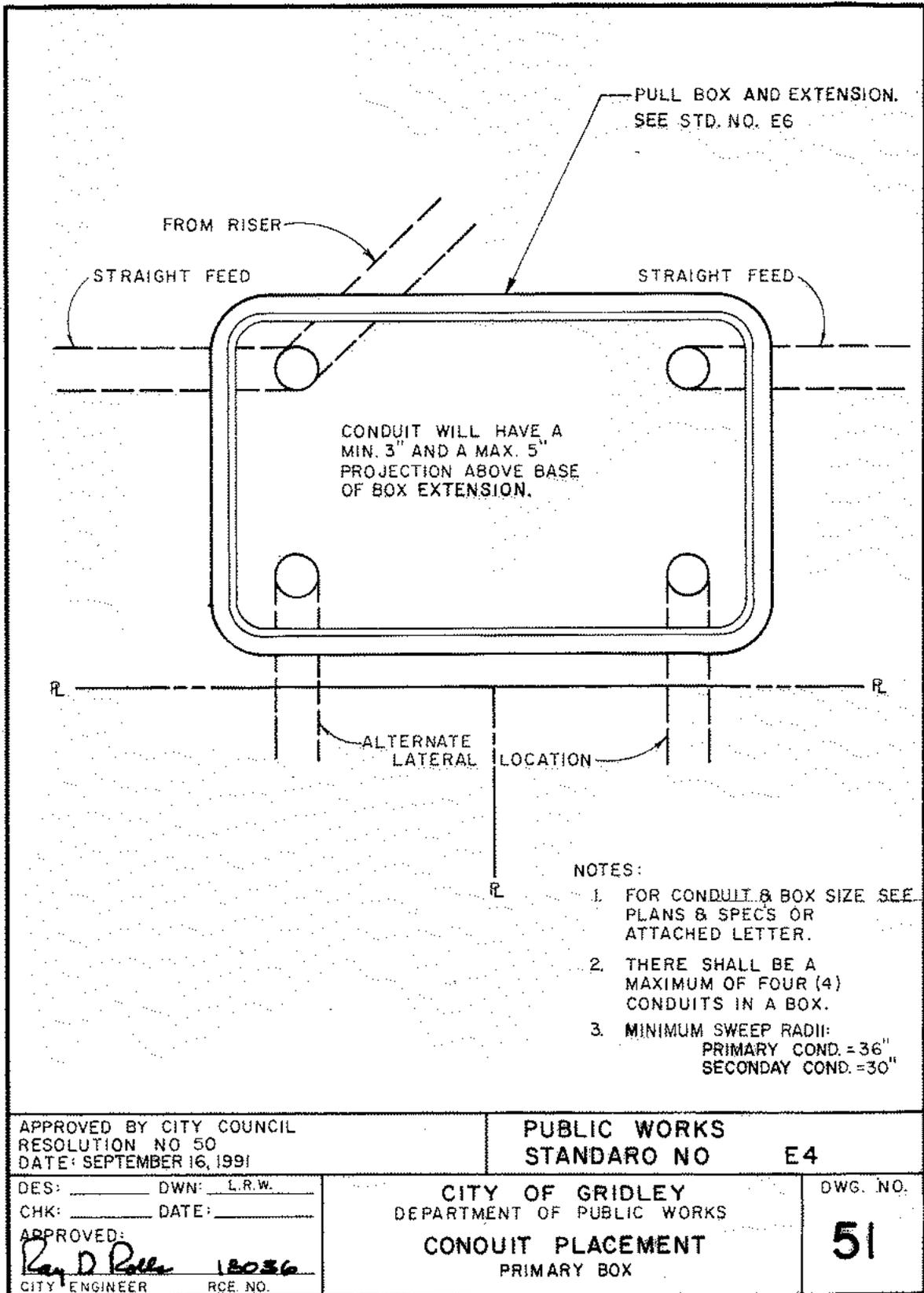
APPROVED BY CITY COUNCIL RESOLUTION NO. 50 DATE: SEPTEMBER 16, 1991		PUBLIC WDRKS STANDARD NO E2	
DES: _____ DWN: L.R.W.	CITY OF GRIDLEY DEPARTMENT OF PUBLIC WORKS		DWG. NO.
CHK: _____ DATE: _____	POLE RISER DETAIL		49
APPROVED: <i>Ray D. Keller</i> (18036) CITY ENGINEER RCE NO.			

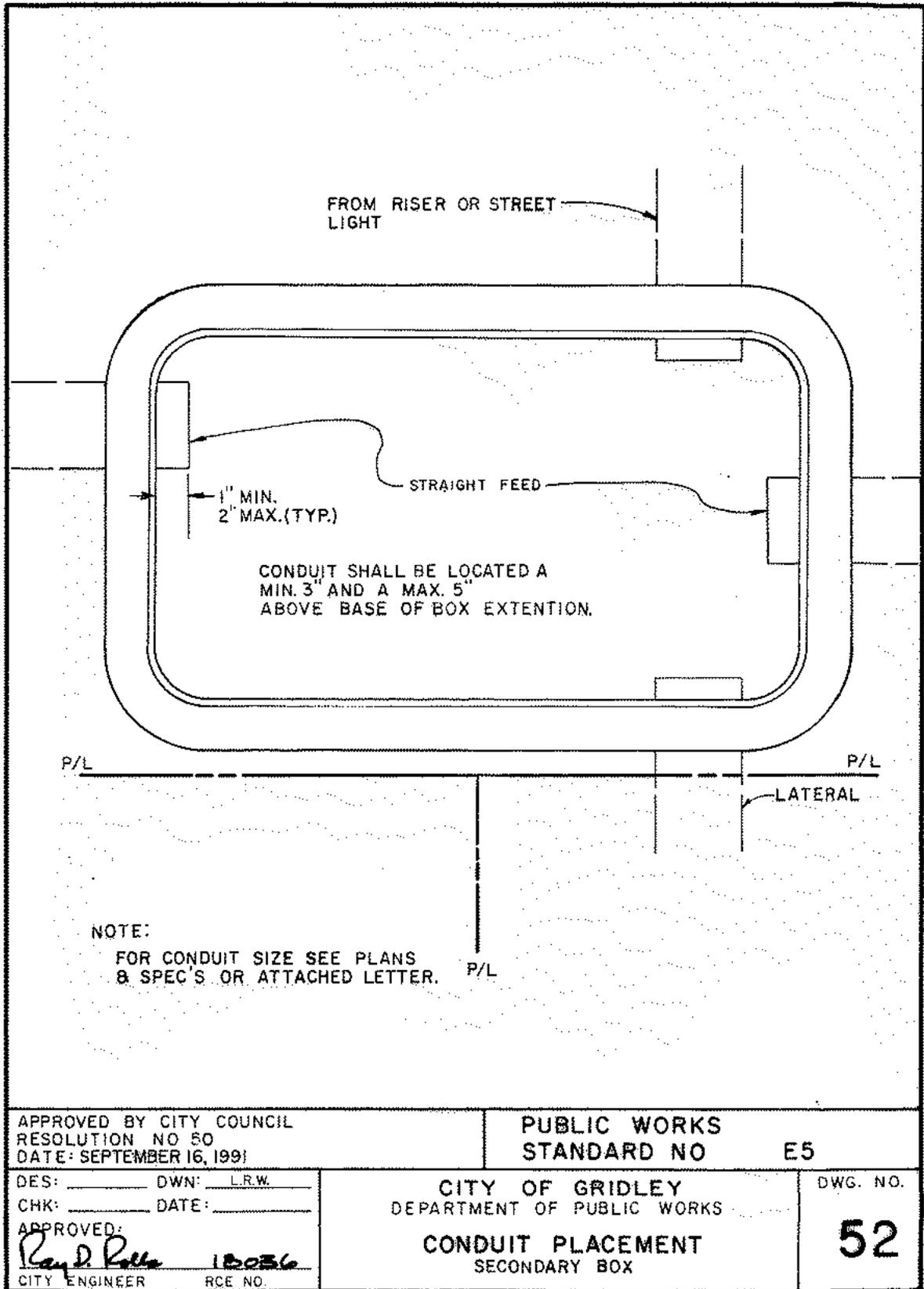


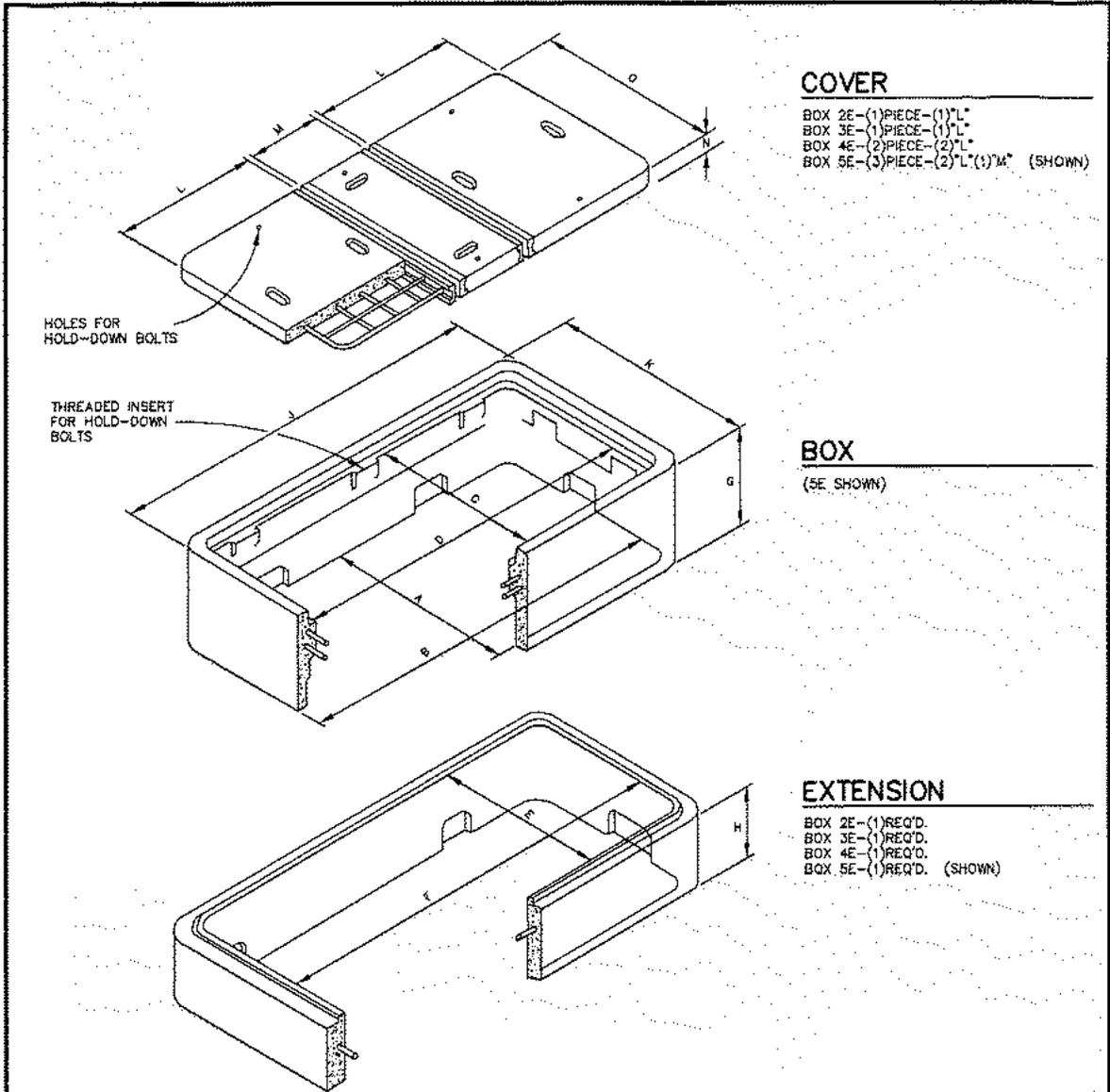
NOTES:

1. CITY OF GRIDLEY WILL LOCATE ALL STREET LIGHT BASES.
2. OWNER WILL INSTALL CONDUIT AND BASES AS SHOWN.
3. STREET LIGHTS SHALL BE 100 WATT HIGH PRESSURE SODIUM LIGHTS INSTALLED ON 25' TAPERED STEEL POLES WITH 8' ARMS APPROVED BY THE CITY ENGINEER.
4. ALL CONCRETE SHALL BE CLASS B P.C.C. WITH LAMPBLACK OF APPROVED QUALITY ADDED AT THE RATE OF ONE-HALF POUND PER CUBIC YARD.

APPROVED BY CITY COUNCIL RESOLUTION NO. 50 DATE: SEPTEMBER 16, 1991		PUBLIC WORKS STANDARD NO E3	
DES: _____ DWN: _____ L.R.W. _____	CHK: _____ DATE: _____	CITY OF GRIDLEY DEPARTMENT OF PUBLIC WORKS TYPICAL STREET LIGHT STANDARD BASE DETAIL	DWG. NO. <b>50</b>
APPROVED: <i>R. D. R.</i> CITY ENGINEER	18036 RCE NO.		







**COVER**

BOX 2E-(1)PIECE-(1)"L"  
BOX 3E-(1)PIECE-(1)"L"  
BOX 4E-(2)PIECE-(2)"L"  
BOX 5E-(3)PIECE-(2)"L"(1)"M" (SHOWN)

**BOX**

(SE SHOWN)

**EXTENSION**

BOX 2E-(1)REQ'D.  
BOX 3E-(1)REQ'D.  
BOX 4E-(1)REQ'D.  
BOX 5E-(1)REQ'D. (SHOWN)

NOTE: SE BOX, COVER & EXTENSION ARE SHOWN 2E, 3E & 4E ARE SIMILAR

BOX NO.	DIMENSION													
	A	B	C	D	E	F	G	H	J	K	L	M	N	O
2E	17"	30"	17"	30"	—	—	12"	12"	34 3/4"	21 3/4"	30 1/2"	—	2"	17 1/2"
3E	24"	36"	21"	32 1/2"	24"	36"	14"	10"	40"	28 1/2"	35"	—	3"	24"
4E	30"	48"	27"	46"	28"	46"	14"	10"	52"	34"	24"	—	3"	30"
5E	30"	60"	27"	57"	29"	59"	14"	10"	52"	34"	24"	12"	3"	30"

**NOTES:**

1. ALL LIDS & COVERS SHALL BE FURNISHED WITH HOLD-DOWN BOLTS.
2. STEEL CHECKER PLATE TRAFFIC LIDS SHALL BE SUPPLIED WHERE SPECIFIED.
3. LIDS & COVERS SHALL BE IMPRINTED WITH "HIGH VOLTAGE".
4. BOXES TO BE BROOKS PRODUCTS, CHRISTY, BES, OR EQUIVALENT CONCRETE BOXES

APPROVED BY CITY COUNCIL  
RESOLUTION NO. 2004-R-028  
DATE: JULY 6, 2004

**PUBLIC WORKS  
STANDARD NO.**

**E6**

DES: P.W.R. DRWN: P.W.R.  
CHK: H.L.V. DATE: JUNE, 2004  
APPROVED:

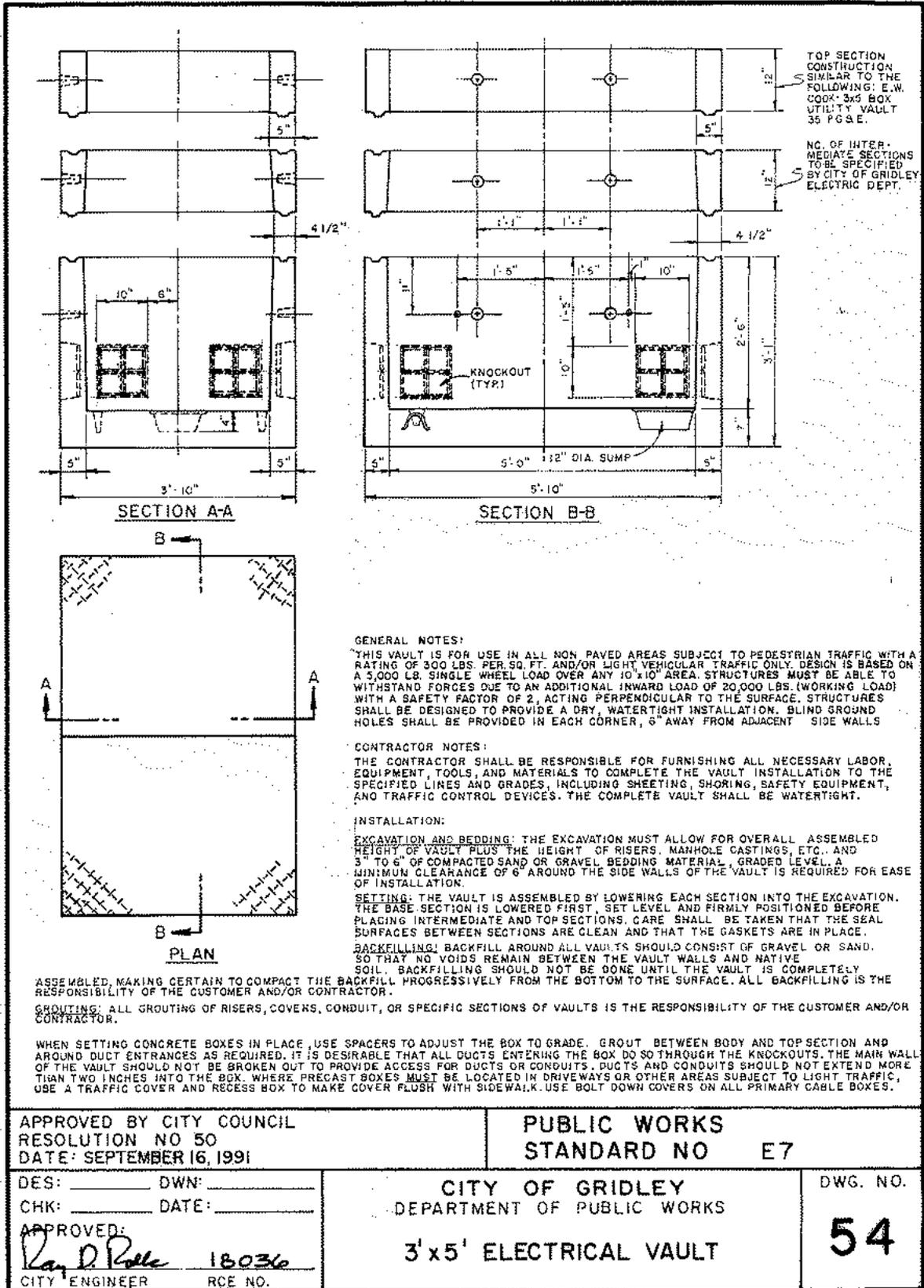
**CITY OF GRIDLEY  
DEPARTMENT OF PUBLIC WORKS**

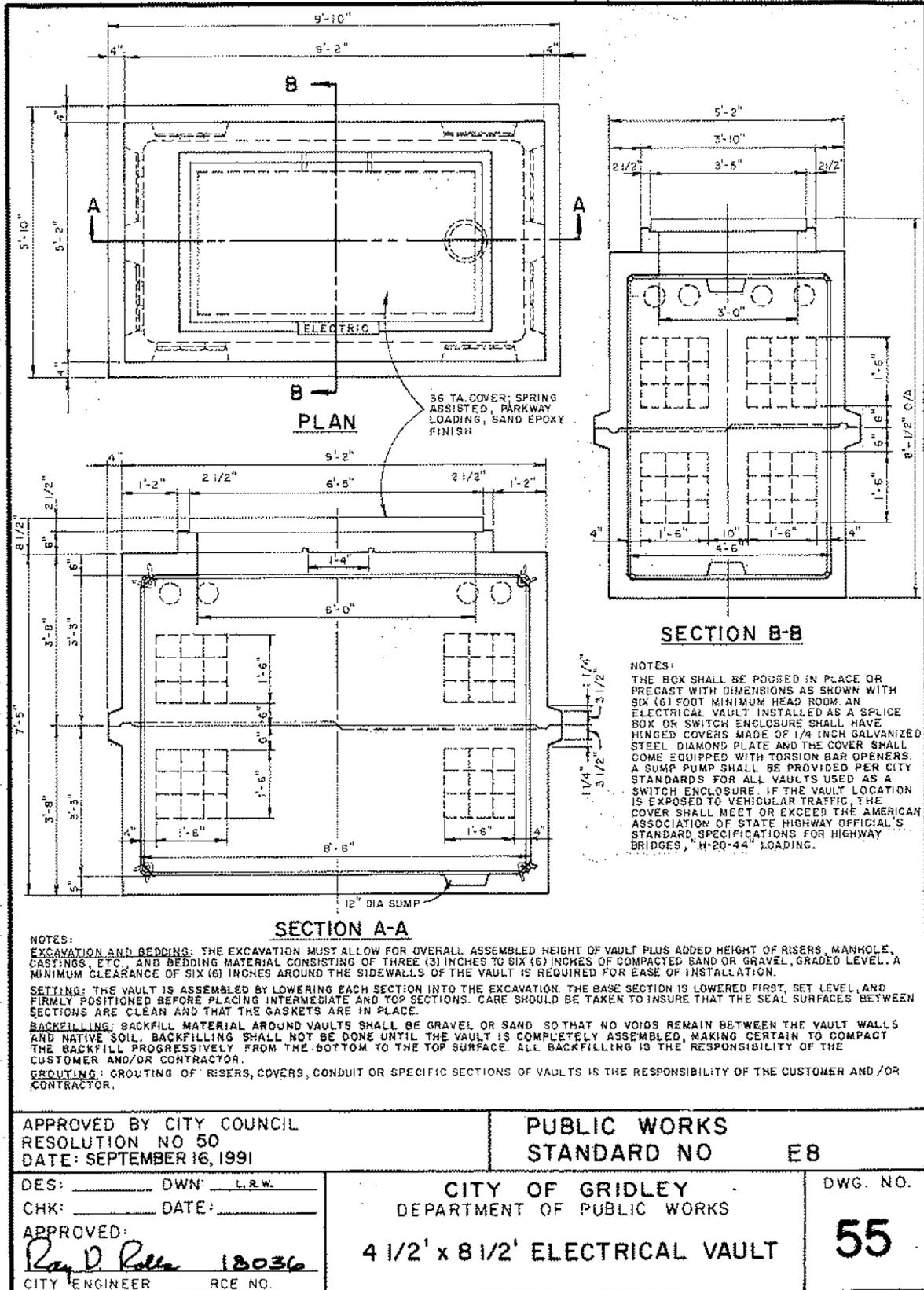
DWG. NO.

*Erwin A. Nader* 33381  
CITY ENGINEER RCE NO.

**ELECTRIC  
PULL BOXES**

**53**





APPROVED BY CITY COUNCIL  
RESOLUTION NO 50  
DATE: SEPTEMBER 16, 1991

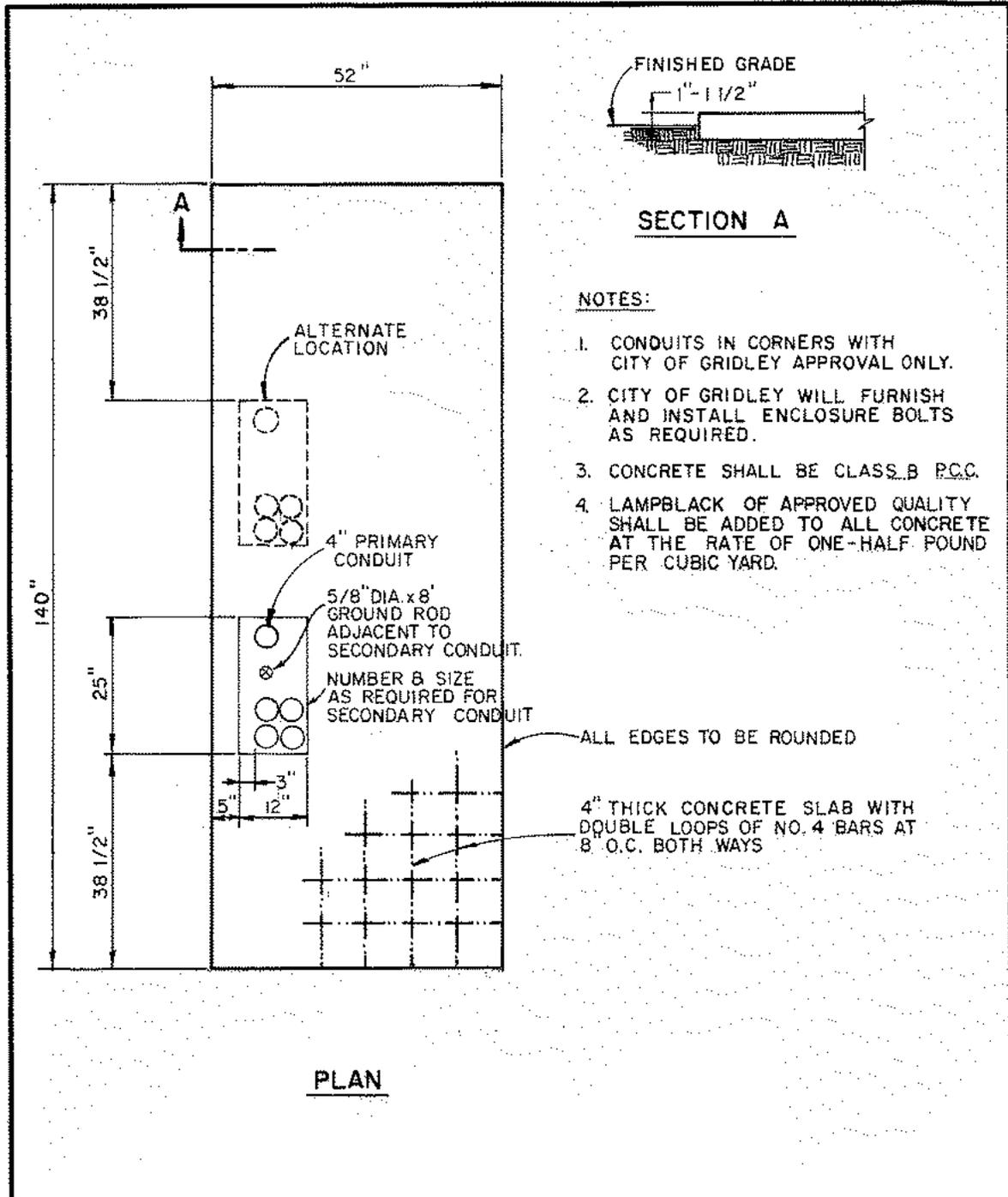
PUBLIC WORKS  
STANDARD NO E8

DES: \_\_\_\_\_ DWN: \_\_\_\_\_ L.R.W.  
CHK: \_\_\_\_\_ DATE: \_\_\_\_\_  
APPROVED:  
*Ray D. Peltz* 18036  
CITY ENGINEER RCE NO.

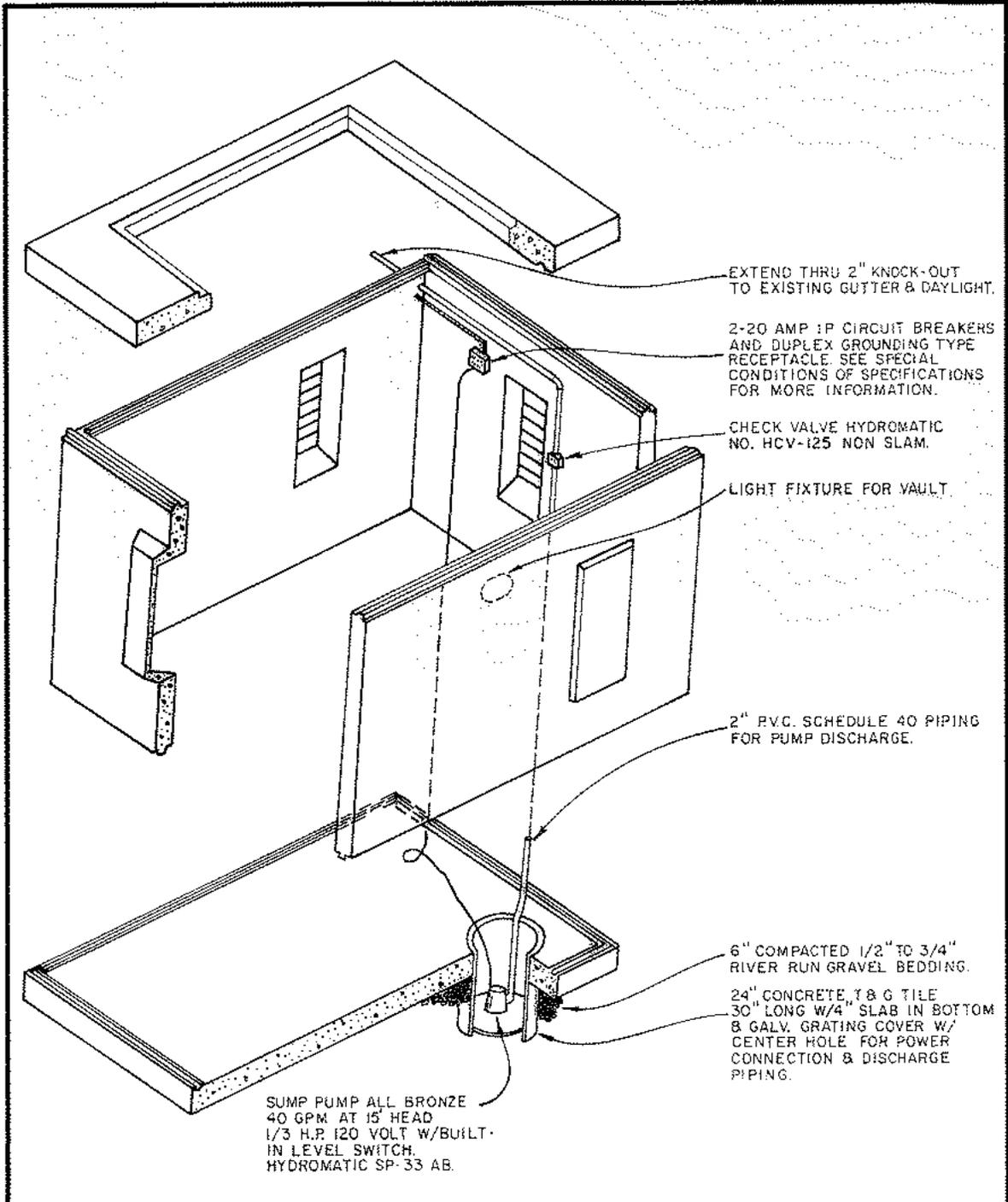
CITY OF GRIDLEY  
DEPARTMENT OF PUBLIC WORKS  
4 1/2' x 8 1/2' ELECTRICAL VAULT

DWG. NO.  
**55**



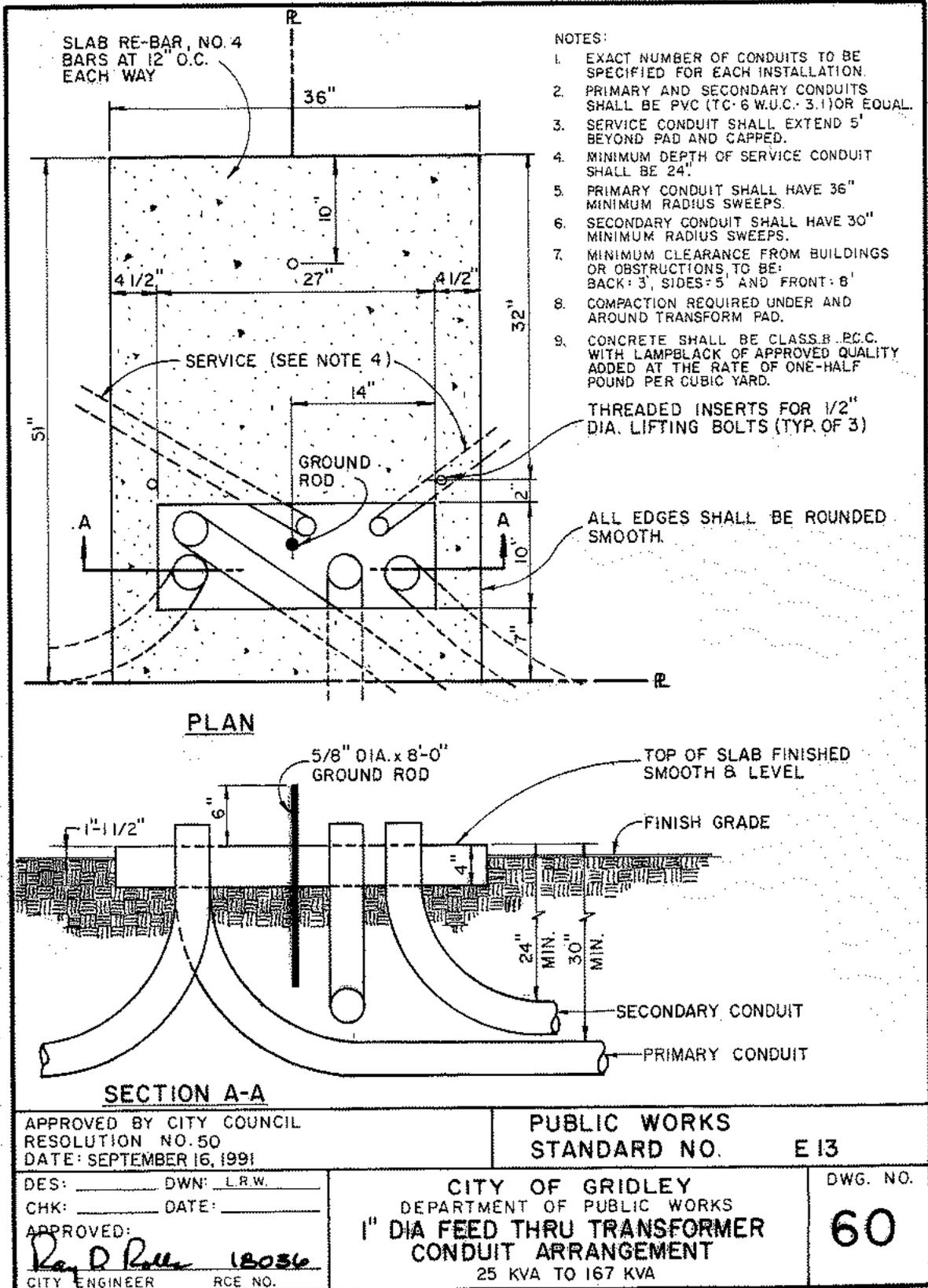


APPROVED BY CITY COUNCIL RESOLUTION NO. 50 DATE: SEPTEMBER 16, 1991		PUBLIC WORKS STANDARD NO. E 10	
DES: _____ DWN: L.R.W.	CHK: _____ DATE: _____	CITY OF GRIDLEY DEPARTMENT OF PUBLIC WORKS FIBERGLASS ENCLOSURE TRANSFORMER PAD	DWG. NO.
APPROVED: <i>Ray D. Rhee</i> CITY ENGINEER	18036 RCE NO.		57



APPROVED BY CITY COUNCIL RESOLUTION NO. 50 DATE: SEPTEMBER 16, 1991		PUBLIC WORKS STANDARD NO. E-II	
DES: _____ DWN: J.R.W.	CHK: _____ DATE: _____	CITY OF GRIDLEY DEPARTMENT OF PUBLIC WORKS	
APPROVED: <i>Ray D. Rolfe</i> 18036 CITY ENGINEER RCE NO.		DWG. NO. <b>58</b>	
		<b>SUMP PUMP DETAILS</b>	

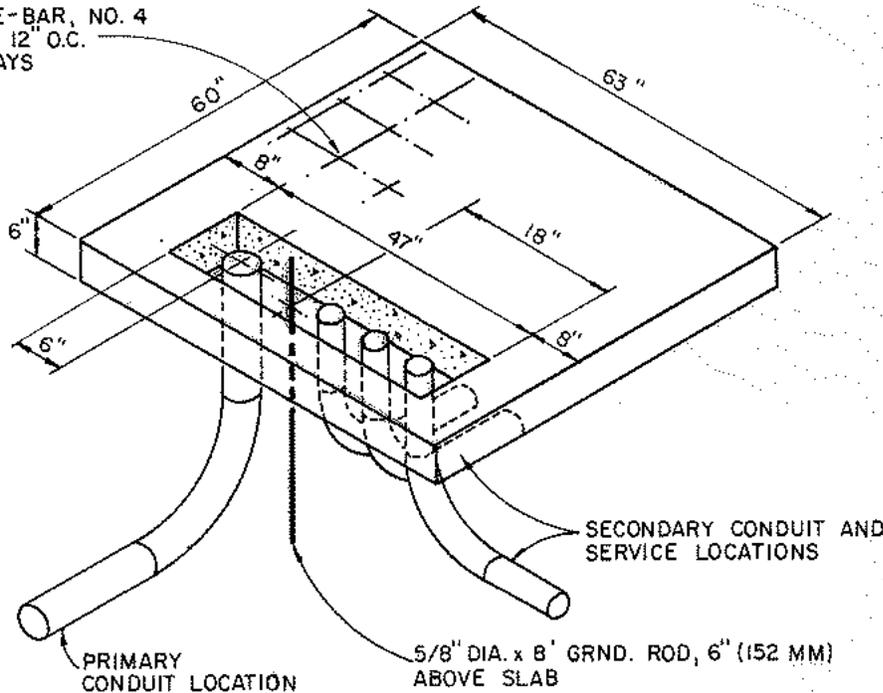




NOTES:

1. PRIOR TO POURING PAD HAVE ELECTRIC DEPARTMENT INSPECT CONDUIT LOCATION.
2. SECONDARY CONDUITS SHALL BE INSTALLED ON EXTREME RIGHT SIDE OF PAD OPENING.
3. MIN. CLEARANCE FROM BUILDINGS OR OTHER OBSTRUCTIONS TO BE:  
BACK= 3', SIDES= 5', FRONT= 8'.
4. COMPACTION REQUIRED UNDER AND AROUND PAD.
5. CONCRETE SHALL BE CLASS B. P.C.C. WITH LAMPBLACK OF APPROVED QUALITY ADDED AT THE RATE OF ONE-HALF POUND PER CUBIC YARD.
6. MINIMUM DEPTHS:  
PRIMARY CONDUIT = 30"  
SECONDARY CONDUIT = 24"
7. MINIMUM SWEEP RADII:  
PRIMARY CONDUIT = 36"  
SECONDARY CONDUIT = 30"
8. CONDUIT SHALL BE PVC TC-6 (P&C)

SLAB RE-BAR, NO. 4  
BARS AT 12" O.C.  
BOTH WAYS

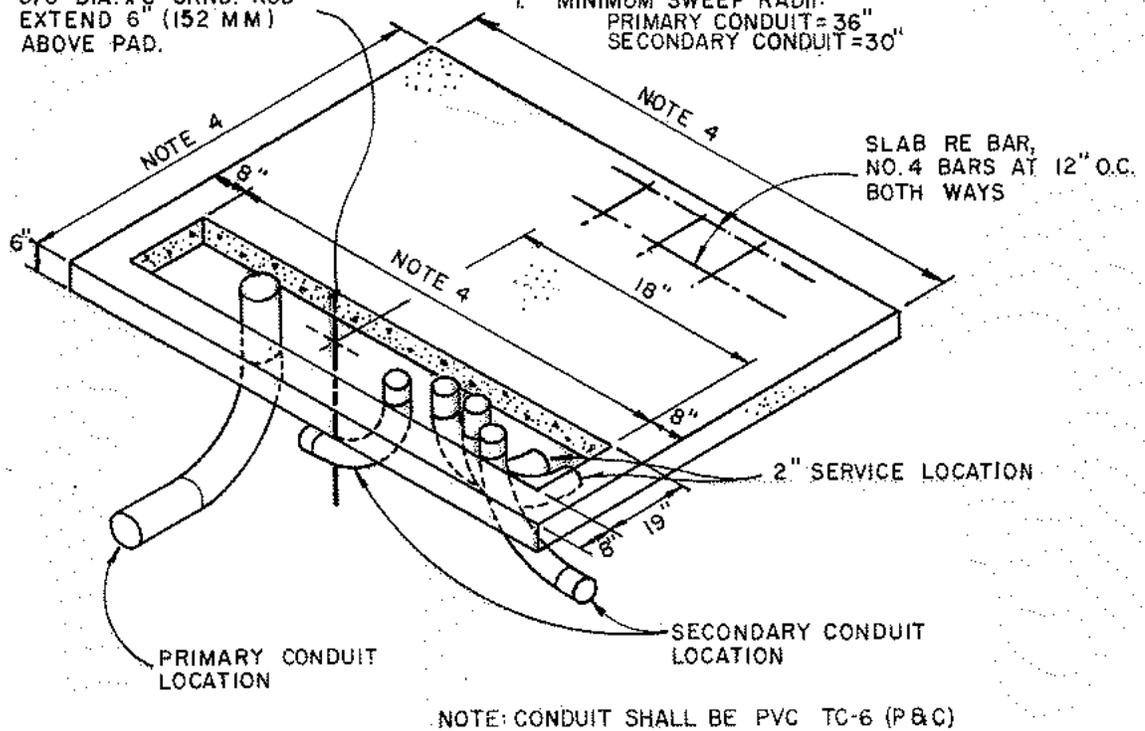


APPROVED BY CITY COUNCIL RESOLUTION NO. 50 DATE: SEPTEMBER 16, 1991		PUBLIC WORKS STANDARD NO. E 14	
DES: _____ DWN: L.R.W.	CHK: _____ DATE: _____	CITY OF GRIDLEY DEPARTMENT OF PUBLIC WORKS <b>TRANSFORMER PAD</b> 45 KVA TO 500 KVA (3 PHASE)	DWG. NO. <b>61</b>
APPROVED: <i>Ray D. Pelle</i> CITY ENGINEER	18036 RCE NO.		

**NOTES:**

1. PRIOR TO POURING PAD HAVE ELECTRIC DEPARTMENT INSPECT CONDUIT LOCATION.
2. MIN. CLEARANCE FROM BUILDINGS OR OTHER OBSTRUCTIONS TO BE: BACK=3', SIDES=5', FRONT=8'.
3. COMPACTION UNDER AND AROUND PAD.
4. CONTACT ELECTRIC DEPARTMENT FOR DIMENSION.
5. CONCRETE SHALL BE CLASS B R.C.C. WITH LAMPBLACK OF APPROVED QUALITY ADDED AT THE RATE OF ONE-HALF POUND PER CUBIC YARD.
6. MINIMUM DEPTH:  
PRIMARY CONDUIT = 30"  
SECONDARY CONDUIT = 24"
7. MINIMUM SWEEP RADIUS:  
PRIMARY CONDUIT = 36"  
SECONDARY CONDUIT = 30"

5/8" DIA. x 8' GRND. ROD -  
EXTEND 6" (152 MM)  
ABOVE PAD.



APPROVED BY CITY COUNCIL  
RESOLUTION NO. 50  
DATE: SEPTEMBER 16, 1991

PUBLIC WORKS  
STANDARD NO. E-15

DES: \_\_\_\_\_ DWN: L.R.W.  
CHK: \_\_\_\_\_ DATE: \_\_\_\_\_  
APPROVED:  
*Ray D. Rolfe* 18036  
CITY ENGINEER RCE NO.

CITY OF GRIDLEY  
DEPARTMENT OF PUBLIC WORKS  
**TRANSFORMER PAD**  
750 KVA TO 2500 KVA  
(3 PHASE)

DWG. NO.  
**62**

