



**COUNTY OF MENDOCINO**  
**Executive Office**  
Facilities & Fleet Division

**CARMEL J. ANGELO**  
**CHIEF EXECUTIVE OFFICER**

851 Low Gap Road  
Ukiah, CA 95482

Email: [facilities@mendocinocounty.org](mailto:facilities@mendocinocounty.org)  
Website: [www.mendocino](http://www.mendocino-county.org) county.org

Office: (707) 234-6050  
Fax: (707) 463-4673

**ADDENDUM #:** 1

**PROJECT:** BID 15-19  
Yokayo Center - Exterior Repairs and Accessibility Compliance

**DATE:** 3-29-2019

**ISSUED BY:** Doug Anderson

*The additions, omissions, clarifications, and/or corrections herein shall be made part of the Contract plans and specifications and shall be included in the Scope of Work and proposals to be submitted. This Addendum modifies the original plans and specifications as described below.*

**INQUIRIES AND CLARIFICATIONS TO PROJECT PLANS AND SPECIFICATIONS**

1. **Q:** There are no details or specifications for the storm drain extension that is shown in the front parking lot.  
**A:** See attached specifications for trenching and storm drainage piping. Notes indicate to match existing pipe and drainage structures.
2. **Q:** Topographic survey on sheet A104 near the north accessible parking stall, indicates the top of paving (606.99) to be higher than the sidewalk (606.18) is this correct?  
**A:** Revise top of paving at this location to read (605.99).
3. **Q:** Specified concrete topping material is limited to a thickness of 6". How are we to proceed if required thickness exceeds 6"?  
**A:** Design intent is to provide new topping slab at all remaining walks to bring them into compliance with ADA and all applicable codes; existing specifications, plan notes, sections and details represent that intent to the extent feasible for design. Should field conditions require modifications to the design provided, such conditions should be documented and brought to the attention of the owner and architect.
4. **Q:** Electrical sheet general note 6 on E201 provides criteria for exterior surface conduit; is it acceptable to surface mount conduit for exterior lighting circuits?  
**A:** Revise Sheet E-201 General Notes as follows:  
General note 6: Add the following sentence to the end of the note: "Limit the use of exposed/surface mount conduit to the extend practical."  
Add General Note 7: Conceal new conduit/circuits to the extend practical.  
Add General Note 8: Use of MC cable (2wire+ground) for lighting and branch power circuits, sized as a typical power circuit, in concealed locations is acceptable.
5. Delete flag uprights (fixture type C) and transformer shown on lighting plan.  
Revise Sheet E-201 Keynote 6 as follows:

Preserve and clean (E) building mounted flag lights, re-direct beams to new flag location. Verify existing circuit and route flag light to relay 3 in new timeclock." Delete keynote 7.

|                               |
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| <b>ADDITIONAL INFORMATION</b> |
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See attached pre-bid walk-through attendance sheet.

Attachments:

- Specification Section 312317 Trenching
- Specification Section 334101 High Density Polyethylene Pipe
- Pre-bid Walk-through attendance sheet

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*Bidders are reminded that they shall complete the Addenda Acknowledgement in the Bid Form of their Specification Book (Section 00310-2). Failure to do so may result in disqualification of the submitted bid.*

## SECTION 312317 - TRENCHING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Excavating trenches for utilities from 5 feet outside building to utility service.
  - 2. Backfilling and compaction.
- B. Related Sections:
  - 1. Section 03 30 00 - Cast-In-Place Concrete: Concrete materials.
  - 2. Section 33 41 00 - Storm Utility Drainage Piping: Storm sewer piping and bedding from building to utility service.

#### 1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- 1. Basis of Measurement: By cubic yard
- 2. Basis of Payment: Includes excavating to required elevations, protecting excavation, and stockpiling excavated materials removing excavated materials from site. Over Excavating: Payment is not made for over excavated work nor for replacement materials.
- B. Subsoil Fill:
  - 1. Basis of Measurement: By cubic yard
  - 2. Basis of Payment: Includes furnishing fill material, stockpiling, scarifying substrate surface, placing where required, and compacting.
- C. Structural Fill:
  - 1. Basis of Measurement: By cubic yard.
  - 2. Basis of Payment: Includes furnishing fill material, stockpiling, shaping substrate surface, placing where required, and compacting.
- D. Granular Fill:
  - 1. Basis of Measurement: By cubic yard.
  - 2. Basis of Payment: Includes furnishing fill material, stockpiling, scarifying substrate surface, placing where required, and compacting.
- E. Concrete Fill:
  - 1. Basis of Measurement: By cubic yard.
  - 2. Basis of Payment: Includes furnishing materials, forming, mixing and placing where required, and curing.

#### 1.3 REFERENCES

- A. ASTM International:
  - 1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)).
  - 2. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.

3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft<sup>3</sup> (2,700 kN-m/m<sup>3</sup>)).
4. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
5. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

#### 1.4 DEFINITIONS

- A. Utility: Any buried pipe, duct, conduit, or cable.

#### 1.5 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Excavation Protection Plan: Describe sheeting, shoring, and bracing materials and installation required to protect excavations and adjacent structures and property; include structural calculations to support plan.
- C. Product Data: Submit data for geotextile fabric indicating fabric and construction.
- D. Samples: Submit, in air-tight containers, 10 lb. sample of each type of Type of material to testing laboratory.
- E. Materials Source: Submit name of imported fill materials suppliers.

#### 1.6 SUSTAINABLE DESIGN SUBMITTALS

- A. Section 01 81 13 - Sustainable Design Requirements: Requirements for sustainable design submittals.
- B. Manufacturer's Certificate: Certify products meet or exceed specified sustainable design requirements.
  1. Materials Resources Certificates:
    - a. Certify recycled material content for recycled content products.
    - b. Certify source for regional materials and distance from Project site.
- C. Product Cost Data: Submit cost of products to verify compliance with Project sustainable design requirements. Exclude cost of labor and equipment to install products.
  1. Provide cost data for the following products:
    - a. Products with recycled material content.
    - b. Regional products.

#### 1.7 QUALITY ASSURANCE

- A. Perform Work in accordance with City of Ukiah standard.
- B. Maintain one copy of each document on site.

## 1.8 QUALIFICATIONS

- A. Prepare excavation protection plan under direct supervision of Professional Engineer experienced in design of this Work and licensed in the City of Ukiah, State of California.

## 1.9 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

## 1.10 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify Work associated with lower elevation utilities is complete before placing higher elevation utilities.

## PART 2 - PRODUCTS

### 2.1 FILL MATERIAL

- A. Structural Fill: Class 2 Aggregate Base.
- B. Granular Fill: Granular pipe bedding, 3/8 inches minus material crushed aggregate or sand bedding with a dry density greater than 100 lb/cubic foot.
- C. Concrete: Lean concrete as specified in with compressive strength of < 400 psi .

## PART 3 - EXECUTION

### 3.1 LINES AND GRADES

- A. Lay pipes to lines and grades indicated on Drawings.
  - 1. [Architect/Engineer] reserves right to make changes in lines, grades, and depths of utilities when changes are required for Project conditions.
- B. Use laser-beam instrument with qualified operator to establish lines and grades.

### 3.2 PREPARATION

- A. Call Local Utility Line Information service at 811 not less than 2 working days before performing Work.
  - 1. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Identify required lines, levels, contours, and datum locations.
- C. Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

- D. Maintain and protect above and below grade utilities indicated to remain.
- E. Establish temporary traffic control and detours when trenching is performed in public right-of-way. Relocate controls and reroute traffic as required during progress of Work.

### 3.3 TRENCHING

- A. Excavate subsoil required for utilities to utility service.
- B. Remove lumped subsoil, boulders, and rock up of 3 inches, measured by volume. Remove larger material from backfill.
- C. Perform excavation within 24 inches of an existing utility service in accordance with utility's requirements.
- D. Do not advance open trench more than 50 feet ahead of installed pipe.
- E. Cut trenches to width 12 inches wider than the piping.
- F. Remove water or materials that interfere with Work.
- G. Excavate bottom of trenches maximum 2 feet wider than outside diameter of pipe.
- H. Excavate trenches to depth indicated on Drawings. Provide uniform and continuous bearing and support for bedding material and pipe.
- I. Do not interfere with 45 degree bearing splay of foundations.
- J. When Project conditions permit, slope side walls of excavation starting 2 feet above top of pipe. When side walls can not be sloped, provide sheeting and shoring to protect excavation as specified in this section.
- K. When subsurface materials at bottom of trench are loose or soft, said material shall be removed until firm bedding can be obtained, or geotextile is placed on the subgrade to provide a stable trench bottom.
- L. Cut out soft areas of subgrade not capable of compaction in place. Backfill with granular material or lean concrete slurry, or place geotextile in bottom of trench and compact backfill to density equal to or greater than requirements for subsequent backfill material.
- M. Trim excavation. Hand trim for bell and spigot pipe joints. Remove loose matter.
- N. Correct areas over excavated areas with compacted backfill as specified for authorized excavation or replace with fill concrete as directed by [Architect/Engineer].
- O. Remove subsoil from site.

### 3.4 SHEETING AND SHORING

- A. Sheet, shore, and brace excavations to prevent danger to persons, structures and adjacent properties and to prevent caving, erosion, and loss of surrounding subsoil.
- B. Support trenches more than 5 feet deep excavated through unstable, loose, or soft material. Provide sheeting, shoring, bracing, or other protection to maintain stability of excavation.
- C. Design sheeting and shoring to be removed at completion of excavation work.
- D. Repair damage caused by failure of the sheeting, shoring, or bracing and for settlement of filled excavations or adjacent soil.
- E. Repair damage to new and existing Work from settlement, water or earth pressure or other causes resulting from inadequate sheeting, shoring, or bracing.

### 3.5 BACKFILLING

- A. Backfill trenches to contours and elevations with unfrozen fill materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.
- C. Place geotextile fabric over Fill Type if weak soils are encountered prior to placing subsequent fill materials.
- D. Place material in continuous layers as follows:
  - 1. Subsoil Fill: Maximum 6 inches compacted depth.
  - 2. Structural Fill: Maximum 6 inches compacted depth.
  - 3. Granular Fill: Maximum 6 inches compacted depth.
- E. Employ placement method that does not disturb or damage perimeter foundation drainage, utilities in trench.
- F. Maintain optimum moisture content of fill materials to attain required compaction density.
- G. Do not leave more than 25 feet of trench open at end of working day.
- H. Protect open trench to prevent danger to Owner and the public.

### 3.6 TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Tolerances.
- B. Top Surface of Backfilling Under Paved Areas Plus or minus 0.08 feet from required elevations.

### 3.7 FIELD QUALITY CONTROL

- A. Section [01 40 00 - Quality Requirements, 01 70 00 - Execution and Closeout Requirements:  
Field inspecting, testing, adjusting, and balancing.
- B. Perform laboratory material tests in accordance with [ASTM D1557.] [ASTM D698.] [AASHTO T180.]
- C. Perform in place compaction tests in accordance with the following:
  - 1. Density Tests: [ASTM D2167,] or [ASTM D2922].
  - 2. Moisture Tests: ASTM D3017.
- D. When tests indicate Work does not meet specified requirements, remove Work, replace, compact, and retest.
- E. Frequency of Tests: One test per foot of depth per 50 lineal foot of trench.

### 3.8 PROTECTION OF FINISHED WORK

- A. Section 01 70 00 - Execution and Closeout Requirements: Protecting finished work.
- B. Reshape and re-compact fills subjected to vehicular traffic during construction.

### 3.9 SCHEDULE

- A. Storm and Sanitary Piping:
  - 1. Cover pipe and bedding with Structural backfill.
  - 2. Compact uniformly to minimum 95 percent of maximum density.

END OF SECTION 312317

## SECTION 334101 - HIGH-DENSITY POLYETHYLENE PIPE (HDPE)

### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. This section includes construction of high-density polyethylene pipe for storm drainage culverts including appurtenances normally installed as a part of these systems. Construction may include surface preparation, trench excavation, shoring, dewatering, lay, align, and join pipe, installation of appurtenances, bedding and backfilling, surface restoration, and other related work.

#### 1.2 RELATED SECTIONS

- A. The following is a list of SPECIFICATIONS, which may be related to this section:
  - 1. Section 31 23 33, Trenching and Backfilling.

#### 1.3 REFERENCES

- A. The following is a list of standards, which may be referenced in this section.
  - 1. American Association of State Highway and Transportation Officials (AASHTO):
    - a. M252, Standard Specification for Corrugated Polyethylene Drainage Tubing.
    - b. M294, Standard Specification for Corrugated Polyethylene Pipe.
    - c. Section 18, Soil Thermoplastic Pipe Interaction Systems.
  - 2. ASTM International (ASTM):
    - a. D3350, Standard Specification for Polyethylene Plastics Pipe and Fittings Material.
    - b. D4976, Specification for Polyethylene Plastics Molding and Extrusion Materials.
    - c. F477, Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
    - d. F667, Standard Specification for Large Diameter Corrugated Polyethylene Tubing and Fittings.
    - e. F894, Standard Specification for Polyethylene (PE) Large Diameter Profile Wall Sewer and Drain Pipe
    - f. F2306, Standard Specification for 12 to 60 in. Annular Corrugated Profile- Wall Polyethylene Pipe and Fittings for Gravity-Flow Storm Sewer and Subsurface Drainage Applications.

#### 1.4 SUBMITTALS

- A. Details of fittings and specials shall be furnished for approval by Engineer

- B. Unless otherwise specified, CONTRACTOR shall submit to ENGINEER for approval SHOP DRAWINGS showing the exact dimension of the joints including the permissible tolerances for each size of pipe being furnished and the size, type and locations of gasket materials. Approval of the joint detail DRAWINGS shall not relieve CONTRACTOR of any responsibilities to meet all of the requirements of these SPECIFICATIONS, or of the responsibility for correctness of CONTRACTOR's details. CONTRACTOR shall submit certified laboratory test certificates for all items
- C. CONTRACTOR shall cooperate with ENGINEER in obtaining and providing samples of all specified materials.

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer:
  - 1. Experienced in the design, manufacture, and commercial supplying of the specific material for a minimum period of five (5) years.
  - 2. Experienced in the design, manufacture, and commercial supplying of the specific size of pipe for a period of one (1) year.
  - 3. Certify to above minimum experience requirements.
- B. All HDPE pipe and fittings shall be from a single manufacturer.
- C. Inspection of the pipe shall be made by the ENGINEER or other representatives of the OWNER after delivery. The pipe shall be subject to rejection at any time on account of failure to meet any of the SPECIFICATION requirements, even though pipes may have been accepted as satisfactory at the place of manufacture. Pipe rejected after delivery shall be marked for identification and shall immediately be removed from the job.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Responsibility for Material:
  - 1. Shipping: Material shall be shipped so to not cut, kink, or otherwise damage pipe during transport.
  - 2. CONTRACTOR shall be responsible for all materials intended for the WORK that are delivered to the construction site and accepted by CONTRACTOR. Payment shall not be made for materials found to be defective or damaged in handling after delivery and acceptance. Defective or damaged materials shall be removed and replaced with acceptable materials at CONTRACTOR's expense.
  - 3. CONTRACTOR shall be responsible for the safe and proper storage of such materials.
    - a. Limit stacking of pipe to a height that will not cause excessive deformation of bottom layers of pipes under anticipated temperature conditions.
    - b. Where necessary, because of ground conditions, store pipe on wooden sleepers, spaced suitably and of such widths as not to allow deformation of pipe at point of

contact with sleeper or between supports.

**B. Pipe Acceptance:**

1. In addition to any deficiencies not covered by the applicable ASTM Specifications, pipe, which has any of the following visual defects, will not be accepted.
  - a. Cracks, bubbles, pinholes, inclusions or occlusions, which, because of their nature, degree, or extent, detrimentally affect the strength and serviceability of the pipe.

**C. Pipe Handling:**

1. Pipe and accessories furnished by CONTRACTOR shall be delivered to, unloaded, and distributed at the site by CONTRACTOR. Each pipe shall be unloaded adjacent to or near the intended laying location.
2. Pipe fittings, specials, valves, and appurtenances shall be unloaded and stored in a manner that precludes shock or damage. Such materials shall not be dropped.
3. Pipe shall be handled to prevent damage to the pipe ends or to any coating or lining. Pipe shall not be skidded or rolled against adjacent pipe. Damaged coatings or lining shall be repaired or replaced by CONTRACTOR, at CONTRACTOR's expense in accordance with the recommendations of the manufacturer and in a manner satisfactory to Engineer. Physical damage to the pipe or accessory shall be repaired or replaced by CONTRACTOR at CONTRACTOR's expense, and in a manner satisfactory to ENGINEER.

- D. Gasket Storage:** All gaskets shall be stored in a cool place, preferably at a temperature of less than seventy degrees Fahrenheit (70°F.), and in no case shall the gaskets be stored in the open or exposed to the direct rays of the sun.

**PART 2 - PRODUCTS**

**2.1 MATERIALS**

- A. General: HDPE pipe, which does not conform to ASTM D3350, ASTM D 4976, ASTM F667, ASTM F894, ASTM F2306, or ASTM F2562 or to any other requirement specified herein, shall not be approved for storm sewer, culvert, or sanitary sewer installations.
- B. Allowable Pipe diameters for this specification shall be between eighteen (12) inches to thirty-six (36) inches unless approved by ENGINEER and OWNER.
- C. Allowable ASTM Specifications: All material, manufacturing operations, testing, inspection, and making of HDPE pipe shall conform to the requirements of the appropriate allowable ASTM Standard Specifications, latest revision thereof, listed in Article References.
- D. Marking:
  1. The following shall be clearly marked on both the interior and exterior surface of the pipe:
    - a. Class and size.
    - b. Date of manufacture.

- c. Name or trademark of manufacturer.
  - d. Deflection angle for bends.
- E. Diameter of Pipe: The diameter indicated on the DRAWINGS shall mean the inside diameter of the pipe.
- F. Wall Thickness and Class of Pipe:
- 1. The wall thickness shall comply with the appropriate ASTM Specification and the class of pipe designated on the DRAWINGS.
  - 2. HDPE pipe and fittings shall have a smooth interior and corrugated exterior. 12-inch through 36-inch pipe shall meet the requirements of AASHTO M294 Type S. The pipe shall have a full circular cross-section with annular corrugations. Pipe shall be produced to constant internal diameters.
  - 3. Pipe and fittings shall be made of high-density, high-molecular weight polyethylene material meeting the requirements of cell classification 324420C or higher in accordance with ASTM D3350. Clean rework material generated by the manufacturer's own production may be used so long as the pipe or fittings produced meet all the requirements of this SPECIFICATION.
- G. Fittings and Specials:
- 1. Elbows and fittings shall be mitered from pipe sections welded together on the interior and exterior at all junctions.
  - 2. The pipe sections forming the miters shall be cut to fit with no gap.
  - 3. Tolerances on the angle of all elbows shall be plus or minus 1 degree.
  - 4. The standard turning radius of elbows shall be 1.5 times the inside diameter. Special turning radii shall be used for special applications.
  - 5. Elbows shall conform to the following requirements:

| Angle of Elbow<br>(Degrees) | Number of Miters |
|-----------------------------|------------------|
| 0 to 45                     | 1                |
| 45 to 90                    | 2                |

6. Elbows shall be designed to prevent joint rupture resulting from dynamic forces or application of a test pressure of 25 psi.

H. Joints:

1. Watertight joints shall be accomplished by rubber gasket, in accordance with ASTM D3212.
2. Gaskets shall be closed-cell synthetic, expanded rubber meeting the requirements of ASTM D1056, Grade 2A2 or made of polyisoprene meeting ASTM F477. Gaskets shall be installed on the connection by the pipe manufacturer.
3. Lubricant shall have no detrimental effect on the gasket of on the pipe.
4. Integral bell and spigot gasketed joints shall be designed so that when assembled, the elastomeric gasket, contained in a machined groove on the pipe spigot, is compressed radially in the pipe bell to form a positive seal. The joint shall be designed to avoid displacement of the gasket when installed in accordance with the manufacturer's recommendations.

### **PART 3 - EXECUTION**

#### **3.1 GENERAL**

- A. The pipe and pipe coatings shall be inspected by ENGINEER for damage or defects before being placed in the trench. Damaged or defective pipe shall not be installed.
- B. All pipes, which do not meet the requirements of PART 2 of this section, will be rejected and replaced at CONTRACTOR's expense.
  - C. CONTRACTOR shall install storm sewer pipe of the type, diameter, load class, wall thickness, and protective coating that is shown on the DRAWINGS.
  - D. Proper equipment, implements, tools, and facilities shall be provided and used by CONTRACTOR for safe and convenient installation of the type of pipe being installed.

#### **3.2 SURFACE PREPARATION**

- A. Within Paved Areas:
  1. The removal of pavement, sidewalks, driveways, or curb and gutter shall be performed in a neat and workmanlike manner. Concrete pavement, asphalt, sidewalks, driveways, or curb and gutter shall be cut with a power saw to a depth of two (2) inches prior to breaking. The concrete shall be cut vertically in straight lines and avoiding acute angles.
  2. Bituminous pavement, sidewalks, driveways, or curb and gutter shall be cut with a power saw, pavement breaker, or other approved method of scoring the mat prior

to breaking or excavation. The bituminous mat shall be cut vertically, in straight lines and avoiding acute angles.

3. Any overbreak, separation, or other damage to the existing bituminous or concrete outside the designated cut lines shall be replaced at CONTRACTOR's expense.
4. Excavated paving materials shall be removed from the job site and shall not be used as fill or backfill.

### 3.3 DEWATERING

- A. All pipe trenches and excavation for structures and appurtenances shall be kept free of water during pipe laying and other related work. The method of dewatering shall provide for a dry foundation at the final grades of excavation. Water shall be disposed of in a manner that does not inconvenience the public or result in a menace to public health. Pipe trenches shall contain enough backfill to prevent pipe flotation before dewatering is discontinued. Dewatering shall continue until such time as it is safe to allow the water to rise in the excavation.

### 3.4 INSTALLATION

- A. General: Precautions shall be taken to prevent foreign material from entering the pipe before or while it is being placed in the line. During laying operations, no debris, tools, clothing or other materials shall be placed in the pipe. The open ends of pipe shall be closed with a watertight plug, or with other devices approved by ENGINEER, at times when pipe laying is not in progress.
- B. Pipe:
  1. Pipe shall be installed in accordance with the manufacturer's recommendations for installing the type of pipe used, unless otherwise shown on the DRAWINGS.
  2. Pipelines shall be laid to the grades and alignment shown on the DRAWINGS or staked by ENGINEER. Variation from the prescribed grade and alignment shall not exceed one-tenth (0.10) foot, and the rate of departure from, or return to, the established grade or alignment shall be not more than one (1) inch in ten (10) feet, unless approved by ENGINEER. No deviation from grade shall cause a depression in the sewer invert that could retain fluids or solids. Any pipe which is not in true alignment or which shows undue settlement after laying shall be taken up and re-laid at CONTRACTOR'S expense.
  3. Lift or roll pipe to protect coating. Do not drag over gravel or rock. Avoid striking rocks or hard objects when lowering into trench.
    - a. Pipe on which coatings have been damaged may be rejected at the site of the Work regardless of previous approvals.
- C. Pipe Fittings:
  1. Pipe fittings shall be laid so as to form a close concentric joint with the adjoining

pipe to avoid sudden offsets of the flowline. Pipe sections shall be joined together in accordance with the manufacturer's recommendations.

2. Pipe fittings and appurtenances shall be carefully lowered into the trench with suitable tools or equipment to prevent damage to the pipe and protective coatings and linings; pipe and accessory materials shall not be dropped or dumped into the trench.

- D. Gaskets: No gaskets that show signs of deterioration, such as surface cracking or checking, shall be installed in a pipe joint. The neoprene gaskets used, when the air temperature is ten degrees Fahrenheit (10°F) or lower shall be warmed to temperature of sixty degrees Fahrenheit (60°F) for a period of thirty (30) minutes before being placed on the pipe.
- E. Obstructions not shown on the DRAWINGS may be encountered during the progress of the WORK. Should such an obstruction require an alteration to the pipe alignment or grade, ENGINEER will have authority to order a deviation from the DRAWINGS, or ENGINEER may arrange for the removal, relocation, or reconstruction of any structure which obstructs the pipeline.

### 3.5 BEDDING AND BACKFILL FILLING

- A. Select bedding and backfill material may be required and shall be so shown on the DRAWINGS. Select bedding materials shall conform to the designated gradation requirements in Section 31 23 17, Trenching and Backfilling.
- B. Bedding material shall be placed under and around all pipes as shown on the DRAWINGS. Bedding shall be placed in a manner that will minimize separation or change in its uniform gradation. Bedding shall be distributed in six-inch (6") maximum layers over the full width of the trench and simultaneously on both sides of the pipe. Special care shall be taken to ensure full compaction under the haunches and joints of the pipe.
- C. Backfill compaction shall not be attained by inundation or jetting, unless approved in writing by ENGINEER. Backfill material shall be uniformly compacted the full depth of the trench to 95% relative compaction.
- D. There shall be a minimum depth of cover over the storm drain piping of one foot or the trench backfill shall be 2 sack cement slurry.

### 3.6 FIELD TESTING

- A. Acceptance Tests for Gravity and Low-Pressure Pipelines:

1. Alignment:

- a. Sewer shall be inspected by flashing a light between manholes or by physical passage where space permits.
- b. Contractor shall clean pipe of joint sealant, other dirt, and debris prior to inspection.
- c. Determine from Illumination or Physical Inspection:

- 1) Presence of any misaligned, displaced, or broken pipe.
- 2) Presence of visible infiltration or other defects.

B. Deflection Testing:

1. Maximum installed deflections of flexible pipe shall be five percent (5%) of mean internal diameter.
2. At the ENGINEER's discretion, CONTRACTOR shall test flexible pipe after backfill has been in place 30 days. Deflection is defined per ASTM D2321.
  - a. CONTRACTOR shall provide rigid ball or mandrel deflection testing equipment and labor.
  - b. Obtain approval of equipment and acceptance of method proposed for use in testing deflection of the pipe. Test shall be performed without mechanical pulling devices.
  - c. Pipe exceeding deflection limits, as defined in ASTM D2321, shall be replaced or re-compacted at CONTRACTOR's expense.

3.7 SURFACE RESTORATION

- A. All streets, alleys, driveways, sidewalks, curbs, or other surfaces broken, cut or damaged by CONTRACTOR shall be replaced in kind or as shown on the DRAWINGS.

3.8 CLEAN UP

- A. All rubbish, unused materials, and other non-native materials shall be removed from the job site. All excess excavation shall be disposed of as specified, and the right-of-way shall be left in a state of order and cleanliness.

END OF SECTION 334101

for the project:  
to Center Exterior  
And  
ibility Compliance  
nesday March 20, 10:

## Yokayo Center Exterior Repairs

## Accessibility Compliance Project

[illegible]