CITY OF DULUTH
DEPARTMENT OF PUBLIC WORKS AND UTILITIES
ENGINEERING DIVISION

CONSTRUCTION PLANS FOR: REHABILITATION AND RELINE OF BREWERY CREEK STORM SEWER SECTIONS 29 & 31

GEOGRAPHIC LOCATION: LOCATED BELOW THE 500 BLOCK OF EAST TENTH STREET BETWEEN NORTH 5TH AVENUE EAST AND CENTRAL ENTRANCE.

MANHOLE & CATCH BASIN INDEX

SCALE

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GOVERNMENT SPECIFICATIONS


INDEX

INDEX MAP

WARNING
LOCATION OF UNDERGROUND UTILITIES TO BE VERIFIED BEFORE DIGGING.
GOVERNMENT IS NOT LIABLE FOR DAMAGE TO THIRD PARTY UTILITIES.

PROJECT APPRAISALS

NAME

LHB PROJECT No. 140125
City of Duluth Proj. No. 0036ST

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City of Duluth Proj. No. 0036ST

1) HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT IT WAS CHECKED BY A PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PROJECT CHIEF

09/09/2015

25128

JON M. GATES

09/09/2015

9/10/15

SOUTH

9/10/15

APPROVED

APPROVED

APPROVED
1. GENERAL REQUIREMENTS FOR CONSTRUCTION ACTIVITY

   a. Erosion Control. The contractor must plan for and implement construction practices that
      minimize the generation of sediment, protect water quality, and protect surface water from
      erosion. The following erosion control measures are required:

      i. Locate and demarcate areas of the site that are to be disturbed, noting data (e.g.,
         grade, bearing, size, shape, etc.).

      ii. Protect runoff from being discharged into streams prior to construction activity. A
         stream crossing is to be designed by the general contractor to ensure that it is
         permitting the following:

            a. Design Flow
            b. Bank Erosion
            c. Design Velocity
            d. Bank Erosion
            e. Design Velocity

      iii. Protect stream banks from erosion and sedimentation during construction.

   b. Stormwater detention and conveyance. The contractor must plan for and implement
      construction practices that will prevent or minimize the generation of sediment, protect
      water quality, and protect surface water from erosion. The following stormwater
      detention and conveyance measures are required:

      i. Locate and demarcate areas of the site that are to be disturbed, noting data (e.g.,
         grade, bearing, size, shape, etc.).

      ii. Protect runoff from being discharged into streams prior to construction activity. A
         stream crossing is to be designed by the general contractor to ensure that it is
         permitting the following:

            a. Design Flow
            b. Bank Erosion
            c. Design Velocity
            d. Bank Erosion
            e. Design Velocity

   c. All construction activities shall be designed by the prime contractor to ensure that they
      are in compliance with the erosion control and stormwater detention and conveyance
      requirements.

   d. General contractor shall ensure that all construction activities are designed by a
      registered professional engineer or landscape architect.

2. SPECIAL REQUIREMENTS FOR CONSTRUCTION ACTIVITY

   a. Soil erosion control. The site will be developed and all sides will be stabilized by
      utilizing erosion control practices that will minimize the generation of sediment, protect
      water quality, and protect surface water from erosion. The following soil erosion
      control measures are required:

      i. Locate and demarcate areas of the site that are to be disturbed, noting data (e.g.,
         grade, bearing, size, shape, etc.).

      ii. Protect runoff from being discharged into streams prior to construction activity. A
         stream crossing is to be designed by the general contractor to ensure that it is
         permitting the following:

            a. Design Flow
            b. Bank Erosion
            c. Design Velocity
            d. Bank Erosion
            e. Design Velocity

   b. All erosion control practices shall be designed by the general contractor, and all
      Sediment is removed from the site and stored in compliance with the general contractor's
      sediment and erosion control plan.

   c. All sedimentARROW control practices shall be designed by the general contractor, and all
      sediment is removed from the site and stored in compliance with the general contractor's
      sediment and erosion control plan.

   d. All sedimentARROW control practices shall be designed by the general contractor, and all
      sediment is removed from the site and stored in compliance with the general contractor's
      sediment and erosion control plan.

3. EROSION CONTROL REQUIREMENTS

   a. Erosion control practices shall be designed by the general contractor, and all
      sediment is removed from the site and stored in compliance with the general contractor's
      sediment and erosion control plan.

   b. All erosion control practices shall be designed by the general contractor, and all
      sediment is removed from the site and stored in compliance with the general contractor's
      sediment and erosion control plan.

   c. All erosion control practices shall be designed by the general contractor, and all
      sediment is removed from the site and stored in compliance with the general contractor's
      sediment and erosion control plan.

   d. All erosion control practices shall be designed by the general contractor, and all
      sediment is removed from the site and stored in compliance with the general contractor's
      sediment and erosion control plan.

4. SPECIFICATIONS FOR EROSION CONTROL

   a. The specifications for erosion control shall be designed by the general contractor, and all
      sediment is removed from the site and stored in compliance with the general contractor's
      sediment and erosion control plan.

   b. All erosion control practices shall be designed by the general contractor, and all
      sediment is removed from the site and stored in compliance with the general contractor's
      sediment and erosion control plan.

   c. All erosion control practices shall be designed by the general contractor, and all
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   d. All erosion control practices shall be designed by the general contractor, and all
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   e. All erosion control practices shall be designed by the general contractor, and all
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   f. All erosion control practices shall be designed by the general contractor, and all
      sediment is removed from the site and stored in compliance with the general contractor's
      sediment and erosion control plan.

   g. All erosion control practices shall be designed by the general contractor, and all
      sediment is removed from the site and stored in compliance with the general contractor's
      sediment and erosion control plan.
KEY NOTES:
1. CONTRACTOR SHALL PROVIDE ACCESS TO FRONT ENTRANCE OF DESTINATION BUILDING THROUGHOUT DURATION OF THE PROJECT.
2. PRECAST CONCRETE BARRIERS TO BE PLACED AROUND PERIMETER OF EXCAVATION LIMITS. CONTRACTOR MAY OMIT BARRIERS WHERE ACCESS IS REQUIRED FOR CONSTRUCTION AND REPLACE WITH ORANGE SAFETY FENCE (INCIDENTAL).
3. CONSTRUCT BITUMINOUS RAMP OVER CURB AND BOX LEADING INTO EXISTING PARKING SITE COVERS 120'-180'-PLATE OR PLUMED PRIOR TO PLACING BITUMINOUS RAMP. CURB-B RAMP MUST BE MAPPED IN-PLACE. TURNING, PLACING AND REMOVING BITUMINOUS RAMP AND CURVING (120'-180') SHALL BE CONSIDERED INCIDENTAL TO OTHER ITEMS.
4. INSTALL ORANGE SAFETY FENCE BETWEEN/PACING PLASTIC DRUMS (INCIDENTAL).

GENERAL NOTES:
- LAYOUT SHOWN IS APPROPRIATE AND SHALL BE DEPENDENT ON CONTRACTORS OPERATIONS AND LOCATIONAL NECESSITIES/NEEDED.
- IN NO CASE SHALL THE ACTUAL CONSTRUCTION AREA EXCEED THAT SHOWN WITHOUT PREVIOUS APPROVAL FROM THE ENGINEER IN THE FIELD.
- THE ENGINEER IN THE FIELD TO DETERMINE LOCATIONAL REQUIREMENTS AND TO ENSURE THE SAFETY CONCERNS.
- "PHASE A" AND "PHASE B" TRAFFIC CONE/SHALL NOT BE IMPLEMENTED CONCOMITANTLY.
- "PHASE A" SHALL BE IMPLEMENTED FIRST AND ALL WORK EXCEPT FINAL PLACING SHALL BE COMPLETED PRIOR TO BEGINNING WORK AT PHASE B.
TRAFFIC CONTROL NOTES

1. All items indicated on the Traffic Control Plan, except those signs which are immediate, shall be furnished and installed by the contractor. All appropriate signs, including stop signs, shall be maintained by the contractor during the life of the contract. Existing stop signs shall be maintained for the duration of the project.

2. All traffic control devices and signing shall conform to, and be placed in accordance with, the Minnesota Manual on Uniform Traffic Control Devices (MNDOT).

3. The contractor shall place reflective plastic guide, warning signs, and barricades within the construction zone to protect vehicular traffic and pedestrians from construction operations. Additional signing may be required but is not limited to signs to identify changes in traffic patterns, road work, and traffic control devices. All traffic control devices shall be adjusted in the field as directed by the engineer.

4. All traffic control devices shall be removed or covered as soon as they are no longer required or appropriate.

5. The initial construction signing shall be erected prior to construction operations.

6. Type A (low intensity) flashers shall be furnished, installed, and maintained on Type H barricades and advance warning signs when used as traffic signs. Identification of signs and as directed in the Traffic Control Plan. Additional flashers shall be furnished, installed, and maintained in zones where barricades and sign boards are removed or as directed by the engineer.

7. Fencing shall be required with work at the edge of the driving line to protect traffic from excavation and paving operation. Fencing shall be in accordance with the pavement layouts shown in part of the drawings, including pole flashing. All barricades related to construction operations shall be constructed to be included in the lump sum payment for traffic control (203.601).

8. "Road Closed Ahead" signs shall be maintained approximately 200 ft (61 m) in advance of the closure and shall be a Type E low intensity flashing amber warning light mounted on them.

9. "Road Closed Ahead" signs may be used where the roadway is closed to all traffic except construction equipment or original authorized vehicles.

10. When a "Road Closed to thru traffic" sign is used, the "CoP" or "Help Sign" at that intersection shall be erected in place or moved to a secure location where the driver can still see the sign.

11. "Road Closed to thru traffic" signs shall be located at the front of the street as to permit local traffic use but effectively discouraging thru traffic use.

KEY NOTES:
1. Post, weights, and hardware required for sign placement are included in item 3.
2. All sign panel dimensions are in inches.
3. Total quantities determined maximum quantity. Contractor shall verify total quantity needed based on access locations for proposed construction.

City of Duluth Proj. No. 0035ST

Sheet No. 07 of 13 Sheets
APPROX. EXISTING STORM SEWER DIMENSIONS

<table>
<thead>
<tr>
<th>STATION</th>
<th>48±32</th>
<th>48±15</th>
<th>48±75</th>
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<tbody>
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<td>INSIDE DIAMETER (INCHES)</td>
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<td>83.5</td>
<td>83</td>
<td>87</td>
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<tr>
<td>INSIDE WIDTH (INCHES)</td>
<td>76</td>
<td>71</td>
<td>59</td>
<td>71</td>
<td>71</td>
<td>73</td>
<td>72</td>
</tr>
</tbody>
</table>

LEGEND:
- Blank = Proposed concrete manhole, cast in place.
- Dotted = Existing concrete manhole, cast in place.
- Dotted = Existing pressure gisual area between existing pipe and proposed lining.
- Solid = Existing concrete pipe, cast in place.
- Broken = Proposed concrete pipe, cast in place.

KEY NOTES:
1. Existing cone section consists of concrete pipe.
2. Existing single section constructed of cast in place concrete.
3. See sheet D for additional details.
4. Approximate slope.
5. To be paid for under item "lining concrete pipe 48".
6. Existing pipe and materials shall be removed to permit satisfactory installation of the new concrete pipe, as required by the contract.
7. Pipe and materials shall be measured along slope, not horizontally.
8. Board of Adjustment.

STORM SEWER PROFILE - SECTION 31

STORM SEWER PROFILE - PHASE A